1956

The Development of a specialized dairy industry in Montana 1919-1939

Raymond Sallee Lanier
The University of Montana

THE DEVELOPMENT OF A SPECIALIZED DAIRY INDUSTRY IN MONTANA 1919-1939

by

Raymond S. Lanier, Jr.

B. A., Montana State University, 1955

Presented in partial fulfillment of the requirement for the degree of

MASTER of ARTS

MONTANA STATE UNIVERSITY

1956

Approved by:

John T. Scott
Chairman, Board of Examiners

G B Castle
Dean, Graduate School

July 23 1956
Date

TABLE OF CONTENTS

Introduction

The aim of this thesis has been to record the growth of dairying in Montana, and to indicate some of the reasons for the development of a specialized, regulated dairy industry in this state. The period to be covered ranges from 1919 to 1939. Before 1919, few farmers specialized in dairying. They had little organization and felt practically no responsibility toward the consuming public. After 1939, abnormal war conditions changed the framework within which Montana dairying developed. By 1939 the industry was fully established and well regulated.

Depression set the stage for the civilized world after 1929. Agriculturally, however, depression was a fact throughout the inter-war period. For Montana dairymen, this was not without its beneficial effects. As a result of the depression, dairying advanced from the status of a haphazard, relatively unregulated occupation or side-line, to an organized, unified, specialized industry. This growth brought advantages to dairymen in terms of increased production efficiency and greater possible net returns. To consumers the development brought greater reliability in the quality of this basic food.

The development of this specialized industry is the topic of this thesis. Of all the factors that might have contributed to the growth of dairying, consideration is here limited to state-wide co-ordinated movements. These movements improved the quality of the product and

fostered efficiency in its production. This thesis will not cover the introduction of technological improvements such as the tractor, or of new farm practices such as the silo. These changes were not fundamental to the problem of dairy specialization, nor were they the result of state-wide action. Also, for example, New York was the leading dairy state for several decades without the silo, and Wisconsin improved the purity of its dairy products long before the tractor was widely used. Immigration and emmigration, changes in social structure, population shifts and political motivations, although important, will not be the primary concern of this work. Federal activity in the same field and period will enter the picture only as it affected local action.

In tracing the developing dairy industry, a variety of materials were available. The basic story of the depression and the rise of dairying were readily at hand in the Census reports, Agricultural Statistics, and publications of the federal and state agricultural agencies. Reports of the various boards actively engaged in dairy affairs of the state told much about the various programs which led to higher production standards among dairymen. Examination of the bills introduced, and of the laws passed in the Montana legislature provided information on the efforts made to alleviate the dairymen's distress. Newspapers of the day rounded out the story. For information on the national and international scene, a number of secondary works were available.

CHAPTER I

THE NATIONAL DAIRY PICTURE, 1900-1939

Only dairying provides man with a nearly complete food. But dairy products are unusually perishable, are easily contaminated, and readily transmit disease. This food, more than most, must be handled carefully. To obtain healthful dairy products, the consumers must demand, and the dairy producers and processors must be able and willing to provide high standards of sanitation in production and distribution. These conditions of demand, ability and willingness have prevailed at various times in the history of dairying in the United States. When and where high standards have been the rule the dairy industry has undergone a sustained growth both in production and in responsibility toward the consumer. Quality has generally influenced production, because, put quite simply, quality affects price, and price affects production.

At the turn of the century, the United States already produced a large volume of milk, cheese, butter and ice cream.[1] In 1900, 17 million cows produced seven billion gallons of milk valued at over 600 million dollars. Milk accounted for nearly one-eighth of the total value of all farm products. New York produced the most dairy products,

---

[1]See P. W. Bidwell, and J. I. Falconer, History of Agriculture in the Northern United States, 1620-1860 (Washington, Carnegie Institute of Washington, May 1925); H. E. Alvord, "Dairy Development in the United States," Agriculture Yearbook, 1899 (United States Government Printing Office, 1900), 381-402; for dairy growth to 1900.

over 10 per cent the total national output. At the time, Wisconsin dairy farmers contributed about 5.5 per cent of the total milk in the nation.[2] These older regions of the United States provided the experience on which the new dairy areas could draw. Eastern states, such as New York, had been active in the industry for at least 40 years, and the knowledge they had gained enabled the nation's dairy industry to advance, technically and responsibly, during the twenties and thirties.

Between 1900 and 1920, U. S. dairy production continued to rise slowly. By 1920, the nation's farmers milked 19 million cows, and produced nearly eight billion gallons of milk valued at 1.5 billion dollars. Over 50 per cent of the value of all livestock products and just less than 10 per cent of the total value of all farm products was represented by whole or processed milk. By 1920, Wisconsin had taken the lead in the dairy industry with 1.75 million dairy cows giving over 800 million gallons of milk. New York in second place by 1920, produced 750 million gallons with 1.5 million cows. Montana with 128,000 cows produced only 45 million gallons of milk.[3] Much of the growth in the 20 years between 1900 and 1920 may have been the result of World War I.

---

[2]U. S. Bureau of the Census, Twelfth Census of the United State, Census Reports, Agriculture, 1900 (Washington, United States Census Office, 1902), v. 1. cxxiii, clxvi, clxxvi-clxxvii, clxxxiv.

[3]U. S. Bureau of the Census, Fourteenth Census of the United States, Agriculture, 1920 (Washington, United States Government Printing Office, 1922), V. 18, 551, 651, 657. The expansion cycle of agricultural development was the subject of the von Thünen thesis. Johann Heinrich von Thünen, 1783-1850, developed the hypothesis of

Nevertheless, although the production of milk and milk products rose to fill national needs, this rise was not comparable to the great increase in other farm commodities. The general demand for food in the war years caused many farmers to put marginal land into production. The high prices for grain, easier to produce than milk, attracted men more than dairying. Therefore, during the war the value of milk dropped when compared to the total value of all farm products.[4]

---

the expansion of agriculture from urban centers. Originally, von Thünen hypothesized, the agricultural community was generally an un-specialized industry. With the growth of towns, agriculturalists began to specialize, raising the intensive, perishable crops in the immediate vicinity of those urban centers. Raising grain and cattle was relegated to the periphery of the urban-agricultural orbit. As the urban nucleus expanded, so did the farm belts; with the less intensive enterprises continually receding from the city center.

The rise of Wisconsin as the leading dairy state supported the general thesis of Johann Heinrich von Thünen. Ever-increasing industrialization and urbanization in the eastern and east-central states raised land values and forced the farmers of the region into production of higher priced crops. These crops included those most perishable; items such as truck crops and, to a lesser degree, dairy produce. The increased land values in the east, plus improved transportation facilities, enabled Wisconsin to become the most important dairying state. Application of the von Thünen thesis to Montana indicates the state is beyond the regions for efficient dairying except for the small, local, urban markets, and to some extent for the rising urban markets of the Pacific coast. But as of 1920, Montana - in fact as in theory - had too few urban centers to make dairying a strong or extensive industry. Application of von Thünen's thesis is based on a discussion of the thesis by Henry W. Wolff, The Future of Our Agriculture. (London, P. S. King & Son, Ltd., Orchard House, Westminister, 1918), 71.

[4]U. S. Bureau of the Census, Twelfth Census of the United States, 1900, V. I, cxxiii,, clxvi, clxxvi-clxxvii, clxxxiv; U. S. Bureau of the Census. Fourteenth Census of the United States. 1920, V. 18, 551, 651, 657.

The post-war agriculture depression drove many marginal grain and meat producers out of those occupations. Some of them entered dairying, which was the most stable agricultural enterprise in these years. Dairying in the United States grew more between 1920 and 1940 than in any previous comparable period. A total of 24 million cows in the U. S. in 1939 gave 11.5 billion gallons of milk valued at 1.75 billion dollars. Wisconsin, still in the lead, contributed about 10 per cent and New York about 7 per cent of all the nation's milk. Montana in 1939 produced less than .65 per cent.[5]

Growth in production was not the only, nor, perhaps, the most significant measurement of dairy development in the United States. The dairy industry matured in its outlook toward the consumer. The farmers began to accept responsibility for producing a quality product which the urban dweller need not fear. Farmers, however, had to be shown the way and given the incentives to provide that quality. The necessary action had to be industry-wide, and well planned as well as clearly presented. No individual farmer was likely, nor could he afford, to take the pains and expense involved in quality production if his neighbor made no similar attempt. Thus control measures intended to insure

---

[5]U. S. Bureau of the Census, Sixteenth Census of the United States, Agriculture, 1940 (Washington, United States Government Printing Office, 1943). III. 600, 604, 874; United States Department of Agriculture, Agricultural Statistics, 1940 (Washington, United States Government Printing Office, 1940). 431.

the required cleanliness and quality had to be applied by federal, state and local government. These control measures led to a maturity in the industry, represented by standards of quality and sanitation, that had not generally existed much before 1900. Of primary importance in controls were the many federal acts.

The first and fundamental development, however, was the emergence of the agricultural college. These schools eventually became the fountains of agricultural research, and for the dissemination of knowledge to the farmers. State agricultural colleges got their first great impetus with the passage of the Morrill Act in 1892. This act provided for a grant of land to each state for the purpose of establishing a college of agricultural and mechanical arts and sciences. Subsequently, these colleges, like that at Bozeman, Montana, became the centers of agriculture research and education.

The Hatch Act of 1887 provided the states with more federal aid for research and experimentation in agriculture. Under the Act of 1887, each state was given an annual grant for agricultural research, the money to be used to establish and maintain experiment stations many of which are connected with the agricultural colleges.[6] Many important

---

[6] Murray R. Benedict, Farm Policies of the United States, 1790-1950 (New York, The Twentieth Century Fund, 1953) 83-84. For the development of farm policies see Murray R. Benedict also Chester C. Davis, "The Development of Agricultural Policy Since the End of the World War," The Yearbook of Agriculture, 1940 (Washington, United States Government Printing Office, n.d.), 297-326. Davis presents the views of an interested party to much of the policy making in the post-war period.

results have been achieved by these colleges and experiment stations. For example, new and better methods of feeds and feeding have contributed to more efficient farm operation and such inventions as the Babcock test (Wisconsin Experiment Station, 1890) introduced greater accuracy into estimating the butterfat production of each cow.

Dissemination of the information thus acquired was the concern of agricultural educators under the Smith-Lever Act of 1914 and the Smith-Hughes Act of 1917. The Smith-Lever Act grew out of the attempts of far-sighted men like Dr. Seaman A. Knapp to educate the farmers to scientific farming by practical demonstration. The agricultural extension service, provided for by the Act, has been doing this. Education of farm youths was provided for by the Smith-Hughes Act. Under this act federal funds were used to promote agricultural education in the elementary and secondary schools.

These steps contributed to the growth and development of a specialized dairy industry. With these colleges and experiment stations, the agricultural scientists could develop the ideas and methods to meet the demands rising out of the depression after World War I. And those ideas could be carried to the people who needed that information. Montanadairymen increased their knowledge directly from these institutions, and from the various state agencies.

The gradual breakdown of laissez-faire practices appeared in the dairy industry especially during the depression years. The major opening in this process was the Food and Drug Act of 1906. This Act laid

the foundation for regulating all food, including milk and its products, and provided the administrative machinery for raising the standards of quality. This, in turn, forced the dairy industry to become more responsible to the public in its attitudes and practices. The Meat Inspection Act, also passed in 1906, laid the basis for future programs for the control and eradication of animal diseases such as tuberculosis and brucellosis. This Act provided for the inspection of all meat for human consumption, and led to the realization of the importance of these diseases. The suspected relation of cattle diseases to human disease resulted in efforts to prevent their spread. These attempts eventually resulted in tuberculosis and brucellosis control programs for dairy cattle.[7] These Acts, plus the effects of the depression after World War I, gradually impelled the dairy industry to recognize its responsibility to society. With quality and purity required by legislation, the farmers were forced to find the means to provide them. This resulted in improved products from a more orderly business, which in turn led to greater profits.

But the improvement in the status of dairying obtained considerable impetus from the general farm depression. Because of the post-war agricultural depression, the farmers and the nation began a search for a farm policy that would meet the needs of agriculture and society. In 1922, the National Agricultural Conference, called to make recommendations for farm relief, established the theme for farmer aims in

---

[7]Murray R. Benedict, Farm Policies, 113.

succeeding decades: "Equality for agriculture." A number of ways were proposed to secure this equality in the division of the national income. The Norbeck-Burtness bill, introduced in late 1923, supported by bankers and the Farm Bureau, attempted to divert northwest wheat producers into diversification. Dairying was suggested by these men as one of the optional fields. Farmers, generally, however, preferred the McNary-Haugen approach to farm relief. This bill, in its several forms, never became law. It would have removed surpluses with government financial support and dumped them on the foreign markets.[8] Both bills would have affected dairying. The first involved encouraging more farmers to enter diversified farming, with the probable result that dairying would have expanded more, thus creating a greater surplus of dairy products. The second approach, the McNary-Haugen bills, might have kept many marginal grain producers out of milk production since the government would, in effect, have subsidized grain-growing, and fewer farmers would have been compelled to find other means to obtain cash. This approach would, perhaps, have alleviated some of the dairy surplus problem. The intention of the McNary-Haugen proponents was not just to hold all farmers in their normal operational plan. Their scheme aimed to reduce the shock of transition by allowing a gradual reorganization of the whole agricultural program.

Out of the discussions and proposals of the twenties came the

---

[8]Chester C. Davis, "The Development of Agriculture Policy..." 297-313; Murray R. Benedict, Farm Policies, 2350236, 238, 267-268, 283.

Agricultural Marketing Act of 1929 and the Agricultural Adjustments Acts of the Roosevelt era. The Marketing Act, passed in 1929, was developed on the theory that agriculture would enter a period of gradually rising prices, punctuated with fluctuations from that general trend, but continually within a prosperous industrial economy. The Act was intended to even out those variations from an estimated norm. But the Great Depression changed that picture. The Federal Farm Board created by the Marketing Act had to contend with a depression for which it was not designed. Attempts on the part of the Farm Board to support prices through co-operatives, including dairy co-operatives, failed because of the unprecedented world depression. Heavy losses were incurred by the Board which soon began to insist that the farmer could be helped only if production fitted the domestic demand.

The Agricultural Adjustment Act of 1933 was designed to reduce production by paying the farmer for restricting production. The Department of Agriculture tried planned restriction of dairy products and, when this failed, turned to buying and storing the surpluses and using them in relief programs where possible. The Supreme Court, in the Hoosac Mills case of 1936, declared important parts of the Agricultural Adjustment Act unconstitutional. Consequently, the administration had to find some way to circumvent the decision or develop new means of achieving agricultural relief. As a stop-gap measure to continue assistance to farmers, the Soil Conservation and Domestic Allotment Act was passed in 1936. This provided for payments to farmers on the

grounds that reduction in acreage was a soil conservation practice and of vital interest to the public. In 1938, a second Agricultural Act was passed, which aimed at more permanent farm relief. Included in this Act were amendments to the Soil Conservation Act of 1936. These amendments made possible the conservation of water and control of erosion in the more arid regions of the nation. The 1938 Act also provided for crop insurance, loans to farmers and parity prices. Under this Act, the Federal Surplus Commodities Corporation bought some of the surplus fairy products and used them for relief purposes.[9] The program was unsuccessful during the first three years of operation. Inexperience of the administrators, lack of co-operation by the farmers and the resultant high cost per unit participating led to unsatisfactory results. In 1941, the United States entered the Second World War. The agricultural aims of the federal government changed from control of production to providing the basic needs of war.

During the thirties Congress adopted some other measures to meet specific conditions and solve specific problems. One such plan was the Jones-Connally Act of 1934, which tried to control surpluses and support prices for meat producers. In the drought of 1934, the government bought cattle from the farmers, enabling them to give better care

---

[9]Chester C. Davis, "The Development of Agriculture Policy.." 312-326;
Murray R. Benedict, Farm Policies, 239-240, 264, 271, 402, 514, 269, 281-284, 353, 375-380, 478-479.

to those kept for foundation stock. Those animals that proved fit for human consumption were turned over to the relief program. Money appropriated under the Jone-Connally Act was also used to compensate farmers for cattle destroyed in the federal-state disease control programs.[10] This action, motivated by the depression effects, furthered the dairy industry's movement toward eradication of tuberculosis and other diseases.

Within this framework of national activities, Montana dairymen raised their industry to a more responsible, organized business of considerable importance to the economy of the state. By 1920, Montana dairymen had resort to the scientific work and educational facilities in agriculture made available under federal aegis. The agricultural college and the experiment station were established at Bozeman in 1893. By the beginning of World War I, the country extension service was in operation. The first hesitant steps toward control of quality in the state milk production began at the turn of the century. Federal agricultural organizations co-operating with state developed agencies, enabled Montana dairymen to meet the depression crises and continue to grow qualitatively and quantitatively. The process of maturing in efficiency, organization, and responsibility during the twenty depression years, is the subject of this thesis.

---

[10]Murray R. Benedict, Farm Policies, 305. 309. 380.

CHAPTER II

MONTANA DAIRY INSTITUTIONS

Montana farmers primarily produced meat and grain in the early Twentieth century. Both were relatively easy and profitable businesses compared to dairying. Milking cows, twice a day, seven days a week, is not a vocation that attracts men easily.[1] Though some farmers had good dairy herds, interest in grain and meat production generally predominated and did not allow sufficient time for reasonable care and management of dairy cattle.[2] Few farmers took up dairying as their main farm program.

As a result, dairying in Montana, before 1919, was in a stage of elementary growth. As will be shown, the industry did not supply local demands. For example, cheese was manufactured only on farms before 1910. Nevertheless, in this period the dairy farmers of the state, as on the national scene, began the development of a specialized and highly efficient industry. They increased milk production and helped create

---

[1] R. W. Clark, Dairying in Montana (Montana Agricultural College Experiment Station Circular No. 10, November, 1911, Bozeman, Montana.

[2] Thirteenth Report of the Bureau of Agriculture, Labor and Industry of the State of Montana for the Years 1911 and 1912 (Independent Publishing Co., Helena, Montana) 160.

the state agencies that would guide and advise them in the future. The number of dairy cows increased from 77,500 in 1909 to 127,500 in 1920. Milk production nearly tripled, rising from 17 million gallons to 51 million in the same period, and the value of dairy products more than tripled from two million dollars to 7.5 million dollars.[3] In spite of this advance, production was still not sufficient to meet local demands. Most of the milk products used in Montana came from other states. Not until the early 1920's did local dairying produce enough to become an exporting industry in some areas.

Some of the men and women connected with dairying felt the need for an established dairy industry in the state. Bulletins published by the Montana Agricultural College Experiment Station at Bozeman insisted on that need, and emphasized the profit that could be made from dairying. One of the earliest bulletins, published in 1908, met farmer demand for information on cheesemaking.[4]

The inadequacy of the Montana dairy industry was pointed out more definitely by two professors from Bozeman. The problem was discussed

---

[3]U. S. Bureau of the Census, Thirteenth Census of the United States: Agriculture: Montana, Statistics for the State and its Counties. 1910, Bulletin, 18, 21; U. S. Bureau of the Census, Fourteenth Census of the United States: Agriculture: Montana, Statistics for the State and its Counties, 1920, Bulletin, 8.

[4]W. J. Elliot, Home Cheesemaking (Montana Agricultural Experiment Station Circular No. 1, Bozeman, Montana, May 1, 1908); see also experiment station pamphlets on dairying and creameries.

at opening ceremonies of a creamery at Stevensville in 1911. There Professor R. W. Clark observed:

> The people of Montana are consuming annually 7,460,000 pounds of butter and 2,611,000 pounds of cheese. The people of the state manufacture annually only two million pounds of butter and no cheese. This should not be so. We should produce at least all that we consume.[5]

Clark was mistaken about the amount of cheese produced in the state, for the 1910 Census indicates that 44,571 pounds of cheese were sold by Montana farmers. Yet his statement that the state did not supply its demand was correct. This fact was reiterated later. In November 1913, Professor R. C. Jones wrote:

> ...the state imports annually about 4,500,000 pounds of butter, 750,000 pounds of cheese, and 900,000 pounds of condensed milk. This is about 66 per cent of all the butter consumed, 98 per cent of the cheese, and all the condensed milk.[6]

Professor Jones called for a greater production of dairy products within the state. That Montana dairying did not supply local consumer demand is evident, as is the fact that this shortage was made known to the public. Whether or not the farmers noted and heeded the urgings of the writers and speakers, farm butter production did increase between 1910 and 1919. By 1919, milk producers made nearly six million pounds of butter and sold over two million pounds, double that made and sold

---

[5]H. F. Sanders, A History of Montana, I (The Lewis Publishing Co., Chicago & New York, 1913) 761.

[6]R. C. Jones, Farm Butter-Making Creamery Industry in Montana (Montana Agr. College Exp. Sta. Circular No. 32, Bozeman, Montana, November, 1913.

in 1910. In 1919 they sold nearly three times as much cream as in 1910.[7]

Creameries and cheese factories increased in number during the ten years after 1910. In 1911, no cheese factories existed, by 1914, three had been established: one at Fort Shaw ~~east~~ west of Great Falls: one at Corvallis in Ravalli county: and one at Judith Gap in Wheatland county. The latter also handled cream for butter-making. These three plants had a yearly capacity of 987,000 pounds of cheese. By 1914 there were thirty-nine creameries in the state with a total yearly capacity of over 8.5 million pounds of butter.[8] This was still not sufficient for local consumption. In 1913, butter was imported at the rate of 3.5 million pounds, cheese at four million pounds, and condensed milk and cream at the rate of 300 carloads a year.[9] The shortage of butter was not as great as in 1910, but cheese production still did not approach the demand.

The number of creameries in Montana increased from 39 in 1914 to 50 in 1920, on up to 66 in 1923. Actual butter production was about

---

[7]U. S. Bureau of the Census, Thirteenth Census of the United State: Agriculture: Montana. 21; U. S. Bureau of the Census, Fourteenth Census of the United States: Agriculture: Montana, 8.

[8]FirstBiennial Report of the Department of Labor and Industry, 1913-1914 (Independent Publishing Co., Helena, Montana) 113, 131-132; this estimate of capacity may not be actual production since figures were taken during the flush season.

[9]Ibid., 158.

6.5 million pounds in 1920 and over 10.5 million pounds in 1911.[10] But not until 1923 is there indication that Montana approached the goal of supplying the home market. In that year, a promotional publication for the railroads claimed that there was a market for Montana dairy products in regions both east and west of the state.[11] Apparently Montana had an exportable surplus in dairy products by 1923.

Dairying, then, was a growing industry in Montana by the end of World War I. But, seemingly, like Topsy, it "just Growed." This tendency toward haphazard, irresponsible growth was curtailed by the regulatory measures proposed and undertaken with increasing tempo during the twenty depression years. That the industry, as of 1919, was not well regulated was suggested in some of the newspapers. In 1920, the Great Falls Tribune noted:

> Firm prosecuted for making old butter into new, says a newspaper report. We wish it could do that with some of the butter we get on our morning roll.[12]

---

[10] Fourth Biennial Report of the Department of Labor and Industry, 1919-1920 (Independent Publishing Co., Helena, Montana) 58-59; Montana Co-operative Crop Reporting Service, Montana Farm Review, II (Helena, Montana, 1923) 8; Montana Farmer, July 1, 1919, 6,21, Great Falls, Montana, 27; Montana Farmer estimates 61 creameries in the state for that year. This may include cheese factories, which would bring the total to about 61. Hoever, the report of the state department of Labor and Industry is the primary source and probably more reliable.

[11] Montana for the Farmer (Chicago, Burlington & Quincy Railroad, Northern Pacific Railway, Great Northern Railway, 1924) 43.

[12] Great Falls Tribune, December 6, 1920. 4.

Louise M. Maier, in an article in the Montana Farmer 1918, demanded that the unsanitary dealer be made to "clean up."[13] In 1919, she spoke to a convention of dairymen in Butte where she advanced the idea that it was a moral duty to draft good laws regulating the industry.[14]

These people pointed up the growing trend toward intensive dairying and the need for regulation of that industry. Coinciding with these tendencies, state agencies were brought into existence to carry out the work in dairy development. By 1919 a number of organizations handled the regulation and education of the milk producers. The fundamental information for the regulation was made available by the state Agriculture College and the Experiment Station. This information was then available to the several regulatory and informational organizations. These agencies fell into three main categories. First, the State Livestock and Sanitary Board protected the health of the cows and compelled cleanliness in farm equipment and buildings. Second, the State Board of Health and its Meat and Milk Inspectors inspected the processing and distribution of milk, butter and cheese. Third, the Department of Agriculture and Publicity compiled statistics for the enlightment of the public and the government, and carried on other educational activities such as the publication of reports on advances made in

---

[13] Montana Farmer, V, 33 (Great Falls, Montana) June 15, 1918, 18-19

[14] Montana Farmer, VI, 28 (Great Falls, Montana) April 1, 1918; Louise Maier shows much prejudice against "foreign" elements in the dairy industry in Butte at that time, blaming them--perhaps beyond reason--for the poor conditions.

dairying. These three groups played a dominant part in producing healthy dairy foods for the people of Montana. These institutions in large measure conditioned and controlled the development of the dairy industry in Montana between 1919 and 1939.

1. DISEASE CONTROL AND SANITATION

The Livestock Sanitary Board played a major role in the development of Montana's dairy industry through its work in disease control and dairy sanitation. Formed in 1907, the Board was given the legal responsibility for decreasing the incidence of tuberculosis and other contagious diseases in livestock.[15] The Board was composed of the

---

[15]The tuberculosis bacillus was isolated by Robert Koch in 1882. Koch developed the tuberculin test in 1890, for which he received the Nobel prize in 1905. There are three types of tuberculosis: human, bovine and avian. Avian tuberculosis is rarely found in humans. In 1892, Dr. B. Bang advocated isolation of cows that reacted to the tuberculin test plus pasterization of milk as a means to prevent transmission of the disease to humans. But, in 1901, Koch claimed that tuberculosis in man was not the same as tuberculosis in cattle. This statement led to a number of British Commissions to study the disease and its effects on humans. As a result of the investigations and independent research, it was found conclusively that bovine tuberculosis could be transmitted to humans, especially children. This means of contracting tuberculosis was considered somewhat less widespread than by human contact. Yet transmission of the disease by drinking infected milk or eating infected meat was recognized, by 1923, as being of major importance. (Albert Calmette, Tubercle Bacillus Infection and Tuberculosis in Man and Animals, trans. Willard Soper & George Smith (Baltimore, Williams & Wilkins Co., 1923) 312, 318, 329-245; Encyclopedia Britannica, XXII (Chicago, Encyclopedia Britannica Inc., 1947) 530-532.

presidents of the Board of Stock Commissioners, the Board of Sheep Commissioners, and the State Board of Health.[16] The state veterinary surgeon served as secretary of the Livestock Sanitary Board. He was assisted by three deputy state veterinarians who carried out the duties of the agency. The veterinarians could obtain additional help from federal inspectors, provided that this assistance was approved by the chief of the Bureau of Animal Industry of the United State Department of Agriculture.

The veterinarians tried to inspect all cows that produced milk for public consumption. They could condemn those which were diseased, and could arrange compensation to the farmers where the law provided. Tubercular cows were ordered destroyed unless the Sanitary Board directed the veterinarians to hold them in quarantine pending treatment.

Compensation for the dairymen was limited by the Montana Revised Codes of 1907. The government paid for condemned cows which were exposed to, but did not yet have the disease, or for cows killed on mistaken diagnosis. This definition eliminated payment for diseased cows per se. Government owned cows were exempt from compensation, as

---

[16] The Board of Stock Commissioners was established as early as 1897 to supervise and protect the stock interests of the state, referring to cattle. The Board of Sheep Commissioners was established in 1905 for the same purpose in respect to sheep. These two boards were designed to promote the development of their industries and aid in prevention of disease and theft. The Board of Health, established in 1907, was vested with the duty to supervise the interests and health of the people in the state; Mont. Rev. Codes (1907), sec. 1474, 1475, 1782, 1854, 1863.

were cows belonging to persons who failed to comply with all the regulations or quarantine imposed by the Sanitary Board. Compensation was based on well defined schedules. Payments ranged from a high of $100 a head for purebred males to $25 for common grades of cows.[17] These prices seem fair enough for the times.[18] Where the cows were held in quarantine for treatment, the owner was liable for the full expense of such treatment.

This program, in force in 1907, contained several objectionable features. Four veterinarians, even with the help in some instances of the federal men, could not be expected to do a thorough job of testing all cattle for tuberculosis. Quarantine, legally provided for tubercular cows, was a formidable obstacle for dairymen, Segregation of diseased animals, except on a highly organized farm, presented problems that few men could solve. Quarantine was not a workable solution, as seems apparent by the fact that tuberculosis continued to be a problem. Nor was the meager and restricted compensation likely to encourage farmer co-operation. Few farmers were willing to test their cows if the diseased animals were then to be slaughtered without compensation.

Some of these flaws were corrected by succeeding legislation. In

---

[17]Mont. Rev. Codes (1907), sec. 1884-1902.

[18]For livestock market quotations see for examples: Great Falls Daily Leader, September 17, 1904, 6; Great Falls Daily Tribune July 20, 1907, 7; Billings Daily Gazette, November 13, 1906, 7.

1911, the state legislature passed, without opposition, an act broadening the power of the Livestock Sanitary Board and making changes in the means of enforcement. The law ordered the Board to divide the state into four districts for the purpose of "applying the tuberculin test to all dairy cattle within the State of Montana."[19] Four additional deputy state veterinary surgeons, appointed for the purpose, doubled the staff's strength.

Two alternatives were open to the owner of tubercular cows in 1911. He could keep the cows in quarantine under the rules imposed by the Sanitary Board, or he could ship them to the nearest abbatoir. If the farmer decided to slaugher, his cattle were subject to inspection under the supervision of the United States Bureau of Animal Industry or by an official of the State. If the animal passed for sale, the owner got that money and had no further claim against the state for compensation.[20]

The law of 1911 was a step in the direction of an orderly disease control program which contributed to the development of the dairy industry. Though quarantine was still part of the plan, by adding veterinarians and districting the state, control became more systematized.

In 1913, compensation was changed in method and evaluation. County responsibility was established. Half the payments were to be made by the

---

[19] Mont. Laws 1911, c. 146

[20] Ibid.

county in which the diseased cow was killed. In determining the value of the cow, the assessed taxable value was used as standard. No compensation was allowed for a cow not on the tax rolls.[21] Little opposition developed against this bill.[22]

Then in 1917 the Livestock Sanitary Board was reorganized by law. This was partly a result of the unification of the Stock and Sheep commissions under the new Livestock Commission.[23] The three members of the Sanitary Board now included the presidents of the Livestock Commission, the State Board of Health, and the State Veterinary Surgeon, who continued as secretary of the board as well. Other changes made in 1917 resulted in two classifications for infected cattle, with methods for disposition of each class. Class one, those with an incurable disease, were to be disposed of and paid for on the tax assessment basis as before. Class two, infected with a non-fatal disease or exposed to one and still destroyed, were to be paid for by a mutual agreement between the owner and the veterinary surgeon. If the state's agent and the farmer disagreed on the price a Justice of the Peace was ordered to appoint three citizens to make a fair appraisal. In cases of tuberculosis the federal government now contributed to the compensation, and only the balance of

---

[21]Mont. Laws 1913, c. 68

[22]Mont. House Journal, 1913, 639-640.

[23]Mont. Laws 1917, c. 51.

the appraised value was paid by the state and county.[24] By 1917, compensation for slaughtered cattle was an accepted principle in tuberculosis eradication, provided, of course, that the owner followed the rules established by the Sanitary Board. The difference in standards of payment for the two classes seems to indicate that the legislators recognized that the value of the incurably diseased animal was reduced sufficiently, and the liability of the farmer such, that taxable evaluation for these was equitable. But exposed cows, not proven diseased, should be assumed disease free, giving the farmer the benefit of the doubt. The farmer was expected to carry his share of the losses, but undue hardship might result if he had to pay for cows killed on suspicion only.

Inspection of farm dairies and cattle, and disposition of diseased animals were the general responsibilities of the Livestock Sanitary Board during the post-war years. And the Sanitary Board was effective in its attempts to control tuberculosis in cattle. When the state started its campaign to control tuberculosis in 1911, 10.63 per cent of all cows tested responded positively. Of 73,612 cows tested in 1921, less than 1 per cent were tubercular.[25] The improvement was little short of spectacular. In the beginning, the state worked alone, or in

---

[24] Ibid., c. 157

[25] Report of the Montana Livestock Sanitary Board and State Veterinary Surgeon, 1921, 1922, I, 5, 9.

association with other states like North Dakota and Minnesota. With the advent of the depression, the control program had federal help through the policing of interstate movement of cattle and co-operation from the individual states in their control plans.[26] Milk cows are, obviously, the basic tools used by dairymen. Thus the development of the Livestock Sanitary Board, and its disease control policies, were fundamental prerequisites to a mature and responsible dairy industry in the state. By providing for healthy cows, and reasonably disease-free milk, the Sanitary Board and the dairymen made possible the production of a clean, safe product.

2. SANITATION CONTROLS

The second category , not in importance but in its place on the route to market, include those agencies concerned with health and sanitation in the processing and marketing of dairy products. Outstanding in this area was the State Board of Health which was in existence by the turn of the century. The duties of the State Board of Health overlapped those of the Sanitary Board until 1921. Meat and Milk inspectors, appointed by the president and secretary of the Board of Health and the Veterinary Surgeon, were required to inspect all dairies. Once each month they inspected and every ninety days they issued a certificate of health when justified. The inspectors were qualified

---

[26] Ibid.

veterinarians. They made tuberculin tests of cows and issued certificates of health for them. The rules and methods of inspection conformed to those prescribed by the Bureau of Animal Industry of the United States, supplemented by any local rules the Board of Health considered necessary. The Inspectors had authority to enter any place where milk products were kept or made. Any dairy that did not meet the standards established by the Board of Health could be closed until it complied with these rules and regulations. Dairy barns had to be free from filth, manure or anything that might be considered a breeding ground for germs.

The State Board of Health also watched for food adulteration. At any time, and any place, the Meat and Milk inspectors could take milk samples for testing purposes. But the legal definition of adulterated milk was such that apparently only failure to meet the required chemical analysis could subject that milk to classification as adulterated.[27] These duties received added importance after the Federal Food and Drug Law went into effect in 1907.

In 1911, Montana followed the national trend and enacted state food and drug laws. The State Board of Health administered the laws which included regulation of milk production. The Board could search for adulterated milk and milk products, and could prosecute offenders. Adulteration could, by law, even include the food the cows ate. Certain cattle feeds were proscribed, such as distillery mash, or refuse from

---

[27]Mont. Rev. Codes (1907), sec. 1512-1556.

from breweries or sugar factories. Stable bedding and barnyard refuse could not be fed. Milk was also considered adulterated if it came from sick cows, if it was handled in an unsanitary manner, or if the farmer added water or anything else to it.[28] Among the foreign substances the law listed preservatives, coloring matter, or anything which tended to thicken milk or cream. The specific minimum percentages of fats and other general parts of milk were legally established. Milk and cream were to be reasonably whole, not, for example, 99.44 per cent water.[29]

Obviously the term adulteration covered a wide field. It also referred to sale of oleomargarine and renovated butter, as well as cheese made from skim milk. This broad definition was used to restrict the sale of these items as pure dairy goods. Any person making or selling oleomargarine, skim cheese or renovated butter was required to label them as such.[30] Any hotel or restaurant using substitutes had to display placards in prominent places informing the public of that fact. In no case was coloring to be added to oleomargarine to make it look like butter.[31] Interest in regulating substitutes for milk products suggests not only legislative desire to provide pure foods for the consumner, but also the desire to protect dairymen.

---

[28]Mont. Laws 1911, c. 130.

[29]Ibid., c. 138.

[30]Ibid., c. 130.

By 1919, the State Board of Health had the power to enforce sanitation regulations within the dairy industry. And this power extended from the cows to the retailers, from grass to bottle. The authority of the Board of Health also overlapped into the field of the Sanitary Board in tuberculosis testing. In spite of overlapping powers, the agents who implemented the regulations were the state veterinarians and their deputies. These officials were identical for both Boards. Although the standards for quality in milk and its products were too loosely defined for proper control, the laws in 1919 did provide the basis for further clarification during the depression years. These state agencies and their activities reflect the trend toward responsible production of better quality dairy products. The public and people in the dairy industry were beginning to realize that quantity was not the only criterion for judging development. Genuinely mature growth required quantity and quality production.

3. EDUCATION

The Department of Agriculture and Publicity provided the dairy industry with statistics and educational information. Before 1913, this Department had been part of the Bureau of Agriculture, Labor and Industry. The Bureau was established in 1897, with a commissioner whose chief duty was to gather data in the fields of agriculture, labor and industry and submit a report to the governor.[32] The Bureau was

---

[32]Mont. Rev. Codes (1907) sec.

split into two Departments in 1913, the Department of Labor and Industry and the Department of Agriculture and Publicity. A commissioner for each department was appointed by the governor with directions to carry out the duties that had been part of the old Bureau.[33] These duties for the Department of Agriculture and Publicity were enlarged to include:

> ...collection and compilation of Statistics for the use of the Bureau, by Counties and by chambers of commerce, Commercial bodies, farmers institutes, co-operative societies of farmers, state federated trade unions, and other industrial associations of promotive character; to provide for the publication and publicity of such statistics;...[34]

These regulations still governed the Department in 1919. The agency compiled data for the use of other departments, agencies or groups in the state. Education was the prime purpose of the department.

Another state body which included education as an important part of its duties was the office of the State Dairy Commissioner, established in 1913. The commissioner, with his two deputies, was given the responsibility of compiling and publishing statistics on all phases of the dairy industry, including the opportunities in the state for new dairymen. These findings were to be published in co-operation with the Bureau of Publicity, in an attempt to get eastern farmers to move to Montana. The Dairy Commissioner was also ordered by law, to try to interest investment in dairy products factories in this state. The

---

[33]Mont. Laws 1913, c. 56

[34]Mont. Laws 1913, c. 70

information was to be disseminated by publication (with the aid of the Department of Publicity) and at meetings of dairymen which were held to advertise dairy products and promote better manufacturing methods. In all his activities, the Dairy Commissioner was to co-operate with the State Agricultural College at Bozeman, Montana.

But education was not the only duty of the Dairy Commissioner. He was also responsible for inspecting dairy plants and farms. Here his duties overlapped those of the Board of Health and the Sanitary Board. By law all complaints about dairy plants and farms had to be investigated. The standards by which the Commissioner and the Deputy Commissioners judged the sanitary conditions of the plants and farms were similar to those of the Board of Health and the Livestock Sanitary Board.[35]

The office of the State Dairy Commissioner became one of the most important agencies in the developing dairy industry after 1919. The duties of inspection combined with those of education presented that department with an opportunity for helping the dairy industry in times of hardship. The members of the commission had available both the facilities from the Agriculture College and first hand knowledge of farm conditions. After digesting the material from these sources, they could then publish workable solutions to farm problems. In this way the office of the State Dairy Commissioner could be of major importance in contributing to the development of the diary industry in Montana.

---

[35]Mont. Laws 1913, c. 77.

In the early 1900's , Montana dairying was clearly retarded in growth compared to other statewide agricultural industries. The backwardness created a vacuum that was apparent to most of those who studied the Montana farm problems. The demand for dairy products had to be satified by out of state producers, since the general Montana farm program did not allow dor diversification. But diversification came. Farmers slowly, but gradually moved in to supply local needs. And after the war, the depression years drove the multitudes in to supply the remaining demand.

But the regulatory agencies were not equipped to control a large industry. Formerly, the state departments supervised only a small number of dairymen. Most dairy products came from outside the state, and controls apparently were ineffectively applied to the necessary imports. Then when the local industry began to provide an increasing proportion of the milk and milk products used in the state, regulation became more important. When, in the post-war depression years, the industry began to export dairy products, standards became important to the producers as well as to the consumers. On the export market, Montana dairymen had to compete with other states and quality would decide the winner in this competition. In the depression years, the state agencies provided the information and the organized programs designed to develop a strong, quality-conscious dairy industry.

In the years between 1900 and 1919, Montana's dairy industry grew in numbers of cows and in production of milk. Regulatory and informational

agencies developed as well. In the critical 20 years to follow these institutions stood ready to help the state dairymen solve their problems.

CHAPTER III

MONTANA DAIRYMEN AND POST WAR PROBLEMS

1919-1929

Montana dairymen between 1919 and 1929 were seriously affected by the general agricultural depression which began in 1920. By 1924 state dairymen produced more milk than the Montana market could absorb. Dairymen were forced to find markets outside the state. And the increase in production continued in Montana as in the nation. As a result, on the local and out-of-state market Montana dairymen had to meet competition from outside producers. This competition forced the local dairy farmers and processors to recognize that buyers preferred products of high quality. Quality production then was the prime goal of the Montana dairy industry during the 1920's. The dairymen, with the help of the government agencies, developed a number of programs during this decade to provide that quality.

And all the while they increased production. The increase during the twenties was influenced to some degree by the depression in other agricultural enterprises. As other farm prices fell, some farmers entered dairying in order to obtain added cash income. Five thousand

more farmers milked cows in 1929 than in 1919.[1] Dairy farmers milked 127,581 cows in 1919 and 173,303 in 1929. From these cows farmers got only 51 million gallons in 1919, but over 87 million gallons in 1929. This increase in dairy activity in the state indicated the growing economic importance of milk and milk products to the state's farmers. The total value of these products was about 7.5 million dollars in 1919, but only around 10.5 million dollars in 1929. By 1929, actual prices received by farmers for milk products dropped 21 per cent from the 1919 point, and fell as much as 30 per cent in 1921 and 1922. But production in the ten year period rose nearly 17 per cent.[2] The agricultural depression did not affect dairying as it did other farm enterprises. As a result, general farmers tended to enter dairy production as a sideline thus increasing competition. The farmer had little incentive for producing good cream. Creameries could profit from poor butter, so were less concerned with manufacturing a grade that would bring the best prices on the Chicago or Pacific markets. For this reason, they would, in general, accept low quality farm produce. In fact, the initial expense of the equipment for making best butter may have caused them to

---

[1]U. S. Bureau of the Census, Fourteenth Census of the United States: Agriculture: Montana, Statistics for the State and its Counties. 1920, Bulletin, 8; Montana Farmer, VIII, 18 (Great Falls, Montana) May 15. 1921, 6; U. S. Bureau of the Census, Fifteenth Census of the United States: Agriculture: Montana, Statistics by Counties, 1930 (U. S. Government Printing Office, Washington, 1931) 16, 19.

[2]U. S. Bureau of the Census, Fourteenth Census, 8; U. S. Bureau of Census, Fifteenth Census, 16, 19.

prefer to manufacture a lower grade product. Dairy farmers, however, had only one product and with a little more care at little added expense it could be of the best quality when delivered to the manufacturer. But farmers saw no reason why they should try to produce the best quality cream when neighbors down the road could get the same price for sour, rancid stuff. The Dairy Division specialists wanted the creameries to give a premium price for the best grade of cream. Creameries were urged to manufacture butter which would meet the strictest quality tests in the big markets. In that way they would obtain higher prices for their product and would be able to share some of the increased profit with the diary farmers.

In addition to the direct benefits from higher prices to be obtained with quality products, another consideration was important. The dairy specialists felt that much of the reason for the depressed prices was the large amount of poor butter on the market. Much of the poor butter came from the farm. It was of inferior or at least inconsistent quality. The dealer who bought it reworked and sold it on the market as renovated butter. The dairy specialists felt that this low priced farm butter tended to keep the prices of better grades of pure butter below what they were actually worth on their own merits. A case of bad money driving out good. Specialists, such as G. H. Webster, urged the farmer not to sell butter or cream to those processors who consistently made and sold low grade products. The experts were sure that these dealers and creameries contributed the most to the low

standards of quality and prices of Montana butter, thus hurting both the farmer and the consumer.[3]

But carelessness, not natural disadvantage, was the cause of the low quality of butter in the state. In December, 1924, the editor of the Montana Farmer observed that:

> ...natural conditions are favorable to the production of the superior product and with the proper incentive in the shape of a high price for good, clean, sweet cream, there is no reason why the quality of the state's dairy products should not be greatly improved. With proper methods employed all along the line a large percentage of Montana's butter should sell for several cents more a pound than it sells for now.[4]

J. O. Tretsven, for years outstanding in the state's extension dairy work, was quoted in the same editorial:

> As I see it the future success and development of the dairy industry in Montana depends largely upon producing a high quality product. Unless we can approach the maximum price for our butter many of our farmers who are now milking cows will stop at the first opportunity.[5]

The opinion that Montana had the natural conditions favorable to a good dairy industry was reflected in numerous Experiment Station Publications also.[6] Tretsven's obvious desire to prevent a large loss of farmers

---

[3]Montana Farmer, 24 (Great Falls, Montana) August 15, 1924, 3; Montana Farmer, 8 (Great Falls, Montana) December 15, 1924, 8.

[4]Montana Farmer, December 15, 1924, 8.

[5]Ibid.

[6]See for example: W. R. Clark, Dairying in Montana, Circular 10 (Mont. State College Agr. Exp. Sta., Bozeman, Montana, November 1911)2

from the dairy industry was in line with the idea then in vogue that diversiifcation of crops was the key to successful farming.

Dairy experts strove to improve the quality of milk products. These dairy experts wanted consumers to obtain the best possible product and at the same time let the farmers get the most money for their product. The experts wanted the dairymen to take advantage of the natural resources of the country to produce more efficiently the quality of milk and cream considered necessary for sound dairy development in the future. Quality, then, was considered a prerequisite for a fully developed and specialized dairy business.

To sum up: before 1920 Montana dairying generally supplied only local consumers. But in the early twenties the industry entered into competition with other states for markets on the west coast and to some extent in the mid-west.[7] This, combined with the depression, put economic pressure on the dairymen. The farmers complained; the Dairy Division of the Montana Department of Agriculture, Labor and Industry then proceeded to investigate and finally proposed corrective measures. The farmers were told: Improve the quality of your products. At the same time the farm press expressed considerable interest in the quality of dairy products. The editors and writers insisted on better quality products in order for Montana dairymen to meet competition from more

---

[7]State-Federal Crop Reporting Service, Montana Farm Review, 1927 II, 6 (Division of Publicity, Helena, Montana, June 1929) 42.

advanced areas. The farmer had to send the manufacturer a purer raw material and the factory then had to turn out correspondingly better goods.

One bottleneck in the improvement program seems to have been the manufacturers themselves. Newspaper reports seem to indicate that the processors were able to make a profit even on second-rate products.[8] The processors and distributors thought they had no economic incentive to improve. The Dairy Division tried to correct this opinion. The Division also had to convince the farmer that quality could lead to high income.

During the early twenties when quality became prominent in dairy discussions, Montana dairymen were beginning to export a considerable part of their dairy produce. Montana milk production had increased 50 per cent between 1919 and 1924, and thereafter an ever increasing proportion of the milk was exported to other states chiefly in the form of butter. By 1929 Montana dairymen shipped out almost seven million pounds of butter. About 80 per cent of this went to the Pacific coast markets. In 1924 Montana dairymen manufactured 14 million pounds of butter and 900,000 pounds of cheese. By 1929, this production rose to 17 million

---

[8]From the tone of newspaper articles, the general opinions of men like G. H. Webster seems to have been that the manufacturers of dairy products would accept almost any quality milk and cream. See for a specific instance: Montana Farmer, 11, 24, (Great Falls, Montana) August 15,1924, 3.

pounds of butter and about two million pounds of cheese.[9] Increased production meant more dairy products were exported. Montana's increase in butter and cheese-making coincided with increased production in the United States.[10] Thus this state began exporting dairy products at the same time that the national markets received more of those products from other sources. Competition, then became severe.

Montana farmers, generally, were affected by the depression. Though dairy prices dropped, many farmers entered that field hoping to get more cash income. Simultaneously the index of prices received by the Montana farmers for dairy products dropped from 167 in 1920 to 114 in 1922-1923,

---

[9]U. S. Bureau of the Census, Fourteenth Census, 8; U. S. Bureau of the Census, United States Census of Agriculture: Montana, Statistics by Counties, 1925(U. S. Government Printing Office, Washington,1925) 24; State-Federal Crop Reporting Service, Montana Farm Review 1927 I[I], 6 (Division of Publicity, Helena, Montana, April, 1928, IV, I (Division of Publicity, Helena, Montana, June, 1929) 42; Montana; Resources and Opportunities, 1933, VI[I], 4 (Division of Publicity, Helena, Montana, May, 1933) 78.

[10]Between 1921 and 1929 in Montana, butter production doubled and cheese production increased ten times. In the U. S. butter production increased by 44% and cheese production increased by 15%. Based on statistics in: Montana Cooperative Crop Reporting Service, Montana Farm Review, 1924, III (Helena, Montana, Independent Publishing Co.) 38; Montana, Biennial Report, 1928-1929, 1929-1930, V, II[I] (Helena, Montana, Montana Department of Agriculture, Labor, and Industry, Division of Publicity, October 1930) 23; Wisconsin Crop Reporting Service, Wisconsin Dairying in Mid-Century, Bulletin 331) State Department of Agriculture, Madison, Wisconsin, 1955)55.

and then rose slightly to 128 in 1929.[11] Comparing general farm prices received and prices paid, the farmer was faced with an 18 per cent drop in expenses, but nearly a 50 per cent drop in income.[12] Thus Montana farmers were caught in a price squeeze that caused them to ask for help. This price squeeze was real and actually affected Montana farmers more than the average American farmer. For example, the percentage of farm foreclosures in the state exceeded those in the United States. From 1921 to 1930, 5.25 per cent of all farm bankruptcies in the U. S. occurred in Montana, but this state had only .83 per cent of the total farms in the nation.[13]

During this period of agricultural distress, dairying was considered one of the most stable of farm enterprises. Farmers whose resources were suitable tended, therefore, to enter dairying and thus caused

---

[11] H. G. Halcrow, Prices Received by Montana Farmers and Ranchers by Months. Exp. Sta., Bozeman, Montana, July, 1956) 32; P. L. Slagsvold, "Montana Farm Prices," Readjusting Montana's Agriculture, II, Bulletin 308 (Mont. State College Agr. Exp. Sta., Bozeman, Montana, January, 1936) 15.

[12] P. L. Slagsvold, "Montana Farm Prices," 13, 15.

[13] R. R. Renne, "Tax Delinquency and Mortgage Forclosure," Readjusting Montana's Agriculture, VIII, Bulletin 319 (Mont. State College Agr. Exp. Sta., Bozeman, Montana, May, 1936) 21. See: W. T. Savage, "Analysis of Agricultural Income and Price Movements with Particular Reference to Montana" (Unpublished M. A. thesis, University of Montana, 1951) for some discussion of this aspect of farm problems.

further disruption of that industry.[14] As early as 1920 this view was expressed in the Great Falls Tribune. An article in that year referred to R. T. Ringling of White Sulphur Springs and his scheme to bring in top quality dairy cows for the farmers of his community.

> Wisconsin is said to be more nearly normal in conditions than any other state in the union, which is attributed to the fact that the farmers there have been devoting their time to dairy production. It is the intention of Mr. Ringling to give the farmers in the vicinity conditions that pertain in Wisconsin.[15]

Some national agricultural experts held similar opinions. The proponents of the Norbeck-Burtness bill, introduced in Congress in 1923, considered

---

[14]The importance of dairying in Montana's agriculture is indicated in the following table:

Census Year	No. Farms	No. Farms Milking Cows	Milk Produced (gallons)	No. Cows Milked
1920	57,677	29,393	51,251,095	127,581
1925	46,904	34,381	73,185,407	167,967
1930	47,495	34,412	87,377,918	173,303
1935	50,564	36,561	76,828,019	177,555
1940	41,823	29,470	72,443,063	129,821

Compiled from: U. S. Bureau of the Census, United State Census of Agriculture, 1945; I, Part 27 (Washington, United States Government Printing Office, 1946) 2, 8, 9.

[15]Great Falls Tribune, January 22, 1921, 1, 11.

dairying as one of the important alternative farm enterprises.[16] Agricultural writers in Experiment Station bulletins also held similar views.[17] These factors tended to increase the pressure on the dairy industry during the twenties.

Thus farmer desire for a higher income led to plans which contributed to development of an organized, specialized, responsible industry. Economic necessity forced the Montana dairymen to produce a better grade for the west coast trade.[18] This, through the medium of the state agencies, led to a rise in the standards of the products.

Most active in developing plans to relieve the financial stress of the dairymen were the state agencies that had grown up between 1900 and 1919. Except for one major change in the organization of the departments, they continued as set up by 1919. As before, these institutions attempted to educate the farmers and the public, and simultaneously prepare plans to increase the efficiency of the dairy industry in Montana.

In 1921 a new Department of Agriculture, Labor and Industry was organized by the State Legislature. The Department replaced the

---

[16]See Chapter I.

[17]See for example: The Montana Cooperative Crop Reporting Service, Montana Farm Review, for 1923, II (U. S. Dept. of Agr. Bureau of Agricultural Economics & Montana State Dept. of Agriculture, Helena, Montana) 4.

[18]Stae-Federal Crop Reporting Service, Montana Farm Review, 1927,57.

Divisions of Agriculture and Publicity and Labor and Industry. The reorganization appears to have resulted from a proposal by Governor Dixon. He wanted to combine all agricultural activities in one department, but the committee to which the legislation was referred apparently thought that this would be unfair to the well run Livestock Commission. The legislative committee felt that the integration should be taken in easy steps. First, allow the Department of Agriculture to work out some of the kinks, and then join forces with the Livestock Commission,[19]

Within the Department of Agriculture, Labor and Industry, the legislature established the Division of Farming and Dairying which was to educate farmers and regulate the dairy industry. Sanitary inspection was still reserved to the Livestock Sanitary Board which continued its program of cow testing. Overall regulation of dairying, however, remained under the direction of the Division of Farming and Dairying. It might seem that the limitation of those duties left little for the Division to do. In practice, however, this was not the case. Working with the College of Agriculture at Bozeman, the Division made scientific and practical information available to the dairymen. The duties of the Division included supervision of the Babcock test and the equipment used, the control of imitation dairy products, and plans to raise the quality of pure dairy products.[20]

---

[19]Great Falls Tribune, January 22, 1921, 1, 11.

[20]Mont. Laws 1921, c. 216, sec. 14-19.

Conflict between the State Department of Agriculture and the Livestock Sanitary Board seems to have developed during the twenties. The State Department of Agriculture felt that it should have full control over inspection of dairies, which was legally a duty of the Livestock Sanitary Board. In a public hearing before the 1927 House of Representatives the two agencies set forth their respective positions. Dr. W. J. Butler, speaking for the Sanitary Board, asserted that they operated for $13,000 a year less than the departments had done in past years. Butler also stated that since the Sanitary Board visited the farms in line with its tuberculosis testing work, the Board would more efficiently inspect the dairies too. Further-more, if the Department of Agriculture took over dairy inspection, that would mean duplication of visits and result in more expense. Dr. W. F. Cogswell of the State Board of Health supported the Sanitary Board. He observed that the two departments worked well together and that a transfer of duties would reduce the ability of the Board of Health to protect consumers from impure milk. But in the end changes were not made, and the Livestock Sanitary Board continued to inspect dairies when testing the cows.[21] The incident illustrated the possibility that differences between the departments may have hampered effective assistance to dairymen during the depression years.

In spite of conflicts and overlapping of authority the Department

---

[21] Bozeman Dairy Chronicle, 41, 61, February 12, 1927, 1.

of Agriculture, Labor and Industry worked with the State Livestock Sanitary Board, the State Board of Health, and the Agricultural College at Bozeman. The State divisions also co-operated with the United States Department of Agriculture for the advancement of the agricultural interests of Montana. This study will be limited to the organized, statewide movements that led to a more efficient dairy industry in Montana. Though federal activity was of major importance, this will be treated indirectly here.

Programs to raise quality in dairying may be classified in two general categories. First, because it began with the cows, came the movement to remove disease factors from milk products. Second, and part of the first, was the drive to improve the sanitary conditions under which milk was produced. Neither of these programs was independent of the other, yet for reasons of clarity and convenience the two will be treated as different aspects of the overall program.

The first campaign, control of disease, was directed mainly toward ending tuberculosis in cattle. The state veterinarians studied methods to reduce the incidence of other diseases, such as mastitis, but in the twenties major emphasis was placed on tuberculosis control.[22] Further-

---

[22]Mastitis is an infectious disease in the udder. The milk is unfit for human consumption. It becomes stringy and the udder hard and feverish in severe cases. Some authorities believe that the germs lay quiescent until the udder is injured, as in a blow or even when exposed to the cold when a cow lies on cold ground. Careless use of milking machines may also cause an outbreak of the infection. Mastitis is found in nearly all dairy herds and causes considerable financial loss because the milk is unfit for consumption.

more it was the only control program that involved state-wide, co-ordinated efforts.

By 1919 a tuberculosis testing program was in operation under federal and state supervision. Any farmer who wanted to sell milk was required to have his cows tested by the state veterinarian. Cows showing reaction to the test were condemned and killed. Compensation for the losses came to the farmer from combined federal, state and local government sources.[23]

The farmers had to be shown that control of disease was to their benefit; but once shown, control measures were effective. The farmer was induced to have his cows tested when he found that the cattle and milk buyers preferred to buy from accredited herds. To qualify as an accredited herd, the farmer had to have his cows tested annually. Reactors could only be a minute percentage of the total. Personal pride contributed to the expansion of the program, for a farmer who had a tuberculosis-free herd, tended to prevent the introduction of suspect cows into his clean herd.[24] By 1921, Gallatin county was on the way to being the first in the United States to have all cattle tested for tuberculosis. Not all farmers saw the full importance of testing. One

---

[23]Report of the Montana Livestock Sanitary Board and State Veterinary Surgeon, 1921-1922, I, 5, 9.

[24]Montana Farmer, VI, 22 (Great Falls, Montana) July 15, 1919, 16.

wrote to the Montana Farmer:

> Is there any real reason to believe that tuberculosis of dairy cattle can be transmitted to man?[25]

Though they questioned the program in some cases, they still gave fine co-operation to it.[26] This seemed to emphasize the desire of Montana dairymen to better their economic position.

Nevertheless, control of bovine tuberculosis in Montana could be effective only if similar measures were in force in other states, or if Montana could keep out infected cows. Other states were active in this control, also with federal help.[27] Furthermore, Montana passed legislation that aimed at preventing entrance of diseased stock.[28] Veterinarians of the Sanitary Board inspected all incoming cattle to stop those that reacted to the tuberculin test. The success of the tuberculosis control program in Montana is evident in the reports of the Livestock Sanitary Board which supervised the testing. The reports continually emphasized the fact that Montana was one of the states most nearly free of bovine tuberculosis. In 1926, when the United State Bureau of Animal Industry was considering establishment of tuberculosis-

---

[25] Montana Farmer, XI, 2 (Great Falls, Montana) September 15, 1923,11.

[26] Montana Farmer, VIII, 17 (Great Falls, Montana) May 1, 1921, 11.

[27] Montana Farmer, VI, 22 (Great Falls, Montana) July 15, 1919, 14; Report of the Montana Livestock Sanitary Board, 1921--1922, 9.

[28] Mont. Laws 1924, c. 31.

free zones, the Montana Livestock Sanitary Board was certain that this state would be one of the first to be placed in one of those zones.[29] Whether first or not, by 1928 ten areas in the state had been designated as modified tuberculosis-free areas.[30] Nowhere in the state were there more than forty-one one hundredths of one per cent of reacting cattle by 1929.[31] Control of tuberculosis in the herds helped to provide a better quality product, but it also contributed to the maturing sense of responsibility in the state's dairy industry.

The second major category in the plans leading to an organized dairy industry in Montana concerned sanitary production of the milk, cream, cheese, and butter. Cleanliness and sanitation had to begin on the farm and continue through manufacture and distribution. In the twenties the importance of cleanliness was emphasized in the state and federal agricultural publications, and in the Montana Farmer. Furthermore, the Livestock Sanitary Board not only tested cows, but at the same time inspected farm dairies and prosecuted offending dairymen.[32]

---

[29] Report of the Montana Livestock Sanitary Board and State Veterinary Surgeon, 1925-1926, I, 8, 9. (Tribune Printing Co., Great Falls, Montana)

[30] Report of the Montana Livestock Sanitary Board and State Veterinary Surgeon, 1926-1928(Tribune Printing Co., Great Falls,Montana) 8.

[31] Report of the Montana Livestock Sanitary Board and State Veterinary Surgeon, 1938-1930, I, 13, 7-8.

[32] The Reports of the Board throughout the period contain sections on dairy inspection with comments on needed action to improve conditions.

The most flagrant offenders of sanitary conditions seems to have been the cream stations. Much of the cream used in the manufacture of butter came to the creamery through small, subsidiary cream stations in the rural producing areas. These cream stations were collecting agents for central dairies, holding points where cream was collected until there was enough for economical shipment. Stations were located any place cream could be stored. As G. H. Webster observed, almost any place would do:

> ...grain elevators, blacksmith shops, livery barns, pool halls and other places equally unsuitable.....but the most common practice had been to use the country stores and meat markets.[33]

Any person could take the job, no technical knowledge was required, and, apparently, no standards of cleanliness were required either. The cans were merely set to one side with the rest of the store's goods, including the store cat or dog and the ever-present mice.

The common practice was to "give the cream the air" by leaving the lids off the cans at least part way. The natural consequence of this was that some unusual items might be found in the cans when they finally arrived at the plant. An indication of the prevailing conditions is contained in a report of George H. Webster, chief of the Dairy Division of the Montana Department of Agriculture. In 1923 he wrote:

> What the result of that [covers off the cream can] might be is illustrated by what a creamery man of acquaintance once found in a can of cream when he was stirring it preparatory to taking a

---

[33] Montana Farmer, I, 19 (Great Falls, Montana) June 1, 1923, 4,7,22; Montana Farmer, I, 20 (Great Falls, Montana) June 15,1923, 8,26,31.

> sample for testing. During the process of stirring, a fine large mouse came to the top of the can. He had evidently been dead for several days, for he was swollen to several times his natural size and a portion of his hair had slipped off. This mouse was put in a jar of alcohol and was kept for two or three years in the office of the State Dairy Commissioner at Helena, Montana, where all visitors were free to take a good look. I will say that the creamery man who made this find, did not churn the cream, neither did he send it back to the shipper, but notified the Dairy Commissioner, who condemned it and dumped it into the sewer.[34]

Thus it is apparent what could and did happen. Most intriguing was the implication that this creamery man was an exceptional one who did not churn the cream!

Foreign objects in the cans were not the only objections to cream stations. After a day or two of standing, cream has a tendency to heat or boil if not kept cold in hot weather, and few if any stations had facilities for cooling. Some of the more conscientious cream station operators might move the cans to a cool spot, but more likely any move was to get the smelly stuff out of the way. Thus it was that much of the cream came to the factory to be made into butter. It does not seem possible that anyone could use such materials in manufacturing food. Granting this possibility, certainly no one could expect a high quality product as a result.

The cream stations were not only unclean, but the operators were incapable of measuring the exact percentage of butterfat in the cream. And that test determined the farmers' payments. The Babcock method of testing was the common method of determining the butterfat content of

---

[34] Ibid.

milk or cream. The operation of the test was relatively simple, but involved some delicate measurements. Considerable error could result if the scales used to weigh the samples were not accurate, or if acid of the wrong strength was used to bring the fat to the top of the tube, or if the sample was not properly cooled after adding the acid. Any of these errors could, and apparently did, mean considerable loss to the farmers.[35]

The investigation that brought the conditions in the cream station to light was instigated in the summer of 1921 on complaint of the dairy farmers to Dairy Division experts. They objected because some areas received higher prices than others for the same product. This discrimination, when added to other depression effects, caused more economic distress among dairy farmers. If the farmers receiving the lower prices could have obtained equal value for their product, they would have suffered less.

To regulate the cream stations, the Committee on Dairies and Dairying introduced Senate Bill 132 into the 1923 legislative assembly.[36]

---

[35]For methods of conducting the Babcock test as prescribed by law see: Mont. Laws 1923, c. 35, sec. 3570. That incorrect operation of the test can mean loss to the farmer is evident in the continued interest shown by dairymen, including the experts, in enforcing strict adherence to the proper methods. The writer has had practical experience with the test in the laboratory and is aware of the ease with which errors can be made.

[36]Mont. Senate Journal 1923, 200. Other matters concerning the dairy industry were dealt with in this bill, but, since we are interested in the co-ordinated efforts that led to maturity in the industry, these have not been dealt with except as they affect the main movements.

Because the Dairy Division had been actively publicizing these conditions throughout 1922, it seems probable that the division was highly instrumental in obtaining regulatory legislation. The bill was passed in both Senate and House virtually without opposition. Under the Act of 1923 stations were required to be licensed before beginning operation. To satisfy the license requirements, a number of conditions had to be met. The Babcock test was clearly defined and persons who made the tests were required to pass an examination and obtain a license. Specific standards were set up for equipment to be used in the test. The location of stations were limited to localities that would not be easily subject to contamination. No longer could the milk or cream be kept in rooms with other articles as in the past. A separate room for the storage of the dairy products was required. The room was to be used for that purpose only. The act required cement floors with drains, screens for the cans, and windows of specified size. In order to keep the milk or cream cool, the law stated that each station had to have a cooling tank of sufficient size. Each cream station had to have a steam boiler or stove to provide hot water for sterilizing utensils and cans. And the method of sterilizing was outlined in detail. The law required the operator to provide racks on which to dry the milk cans. Furthermore the law established penalties for those who failed to comply with the standards.[37]

37Mont. Laws 1923, c. 36.

The original complaint that led to the investigation and legislation was the discrimination in cream prices between districts. The law that had been in force up to 1923 had required the prosecution to show that the prices were intended to create a monopoly or destroy competition. In 1923 this provision was changed to eliminate that weakness. Mere price differential was illegal. The legislators clearly stated that the only lawful reason for price differences would be compensation for shipping costs.[38]

Some farmers and dealers felt this bill was so strict that it would end the use of cream stations. Those who opposed the bill felt that it would mean cream stations would have to close, adding hardship to the areas served by them. This view was not supported by others in the business or by the Dairy Division. According to George H. Webster, the law would not end the use of cream stations, but only increase the chances of raising the quality of the product by improving sanitation. And even if some foul stations did have to close that would not harm the industry. Some large dealers, Webster stated, had wished to discontinue the stations. They believed that the best cream was delivered direct from the farm to the factory. Many processors had kept cream stations only to meet competition in certain outlying regions. Furthermore, G. H. Webster claimed that the same means of shipping was open to the farmer as to the dealer. Since little cream was delivered in less than five gallon lots,

---

[38] Ibid.

individual shipping would not result in more farm expense. Thus, even if cream stations were eliminated, it would work no hardship on the dairy farmers. It would benefit them in higher quality and prices. Webster did not believe that the law of 1923 would wipe out the stations.[39] The Montana Farmer also supported the new law of 1923. The editors were of the opinion that the legislation would result in much better conditions for the farmers.

> We are heartily in favor of the new Montana dairy law and we consider it one of the finest pieces of legislation put across by The Montana Department of agriculture.40

Those who favored the act were right. Though one creamery tried a test case, it was unsuccessful, for the statute remained on the books through successive legislative sessions.[41] Cream stations did not have to close, and at least one new station opened as late as 1927.[42] And the act did clean up the stations and improved quality down the line.

Succeeding legislative assemblies made some additions to the control measures incorporated in 1923. The Committee on Dairying, in 1925, introduced a bill into the House to try to ensure proper cleansing of milk and

---

[39] Montana Farmer, X, 19 (Great Falls, Montana) June 1, 1923, 4, 17,22; Montana Farmer, X, 20 (Great Falls, Montana) June 15, 1923, 8,26,31; for verification of his position see: Mont. Laws 1923, c. 35.

[40] Montana Farmer, X, 21 (Great Falls, Montana) July 1, 1923, 8.

[41] Ibid. This case must not have gone to the State Supreme Court, since no decisions on this can be found.

[42] Montana Farmer, XIV, 17 (Great Falls, Montana) May 1, 1927, 20.

cream containers before the creameries returned them to the farmers.[43] Representative Mark D. Fitzgerald of Ravalli County introduced two bills in 1925. One represented another attempt by the farmers to compel proper use of the Babcock test equipment and providing penalties for noncompliance. The other required creameries or stations that used the Babcock test to keep samples of the milk or cream for a period to allow the department of agriculture inspector to check that test.[44] These bills, passed in 1925, tended to ensure proper testing and thus full payment to the dairymen. The bills were not strongly opposed.[45]

G. W. Gastufason of Blaine county introduced a bill, which passed, in the House in 1927, designed to increase the sanitary conditions in the cream stations.[46] Again, as in 1925, most of the opposition came from legislators from rural producing areas. Those men representing the urban areas generally seemed to favor sanitary measures, perhaps, reflecting consumer pressures.[47]

---

[43]Mont. Laws 1925, CX c. 153.

[44]Mont. Laws 1925, c. 166.

[45]Mont. House Journal 1925, 460, 505-506, 508; Mont. Senate Journal 1925, 450, 469.

[46]Mont. Laws 1927, c. 142.

[47]Mont. House Journal 1927, 427-428; Mont. Senate Journal 1927, 463. Opposition consisted of Legislators from the following counties: Carbon, Fergus, Dawson, Phillips, Custer, Sweet Grass, Liberty, Treasure, Missoula, Flathead, McCone, Daniels, Powell, Wheatland, Sanders, Madison, Powder River, Broadwater, Jefferson, Meagher, Glacier, Park, Deer Lodge, Silver Bow. The Senator from Silver Bow county was the only legislator from an urban area that opposed the bill.

All of these laws after 1922 contributed to growth in the dairy industry. The dairymen improved the sanitary conditions under which the milk and cream was produced and also reduced the possibilities of tuberculosis in cows. The conditions that led to investigations of the cream stations and to tuberculosis control also resulted in changes in processing. Dairy products manufacturers did not usually pasteurize the milk or cream used in making butter, cheese or ice cream. As part of the general attempt to raise the quality of Montana's dairy products, the Montana State Dairy Products Manufacturers' Association passed a resolution in November 1925 calling for compulsory pasteurization of all milk and cream used in the manufacture of butter and ice cream. This was the first step in Montana toward pasteurization as a means to quality production, and it is notable that it was taken by the industry to be affected. Subsequently, in the legislature of 1925, the Dairy Committee introduced a bill in the House calling for compulsory pasteurization.

Though the bill for pasteurization started out well, it failed to pass the legislature. In the House, a large majority favored such action. The Senators, however, were almost evenly divided in their opinions; the opposition won by a margin of one vote.[48] Those Senators against the bill seem to have represented counties where dairy products were manufactured

---

[48]Mont. House Journal 1925, 459-460; Mont. Senate Journal 1925, 476. Opposition consisted of Senators from the following counties: Richland, Gallatin, Golden Valley, Lewis & Clark, Toole, Hill, Prairie, Rosebud, Sanders, Garfield, Ravalli, Meagher, Dawson, Wheatland, Judith Basin, Broadwater, Granite, Flathead, Fergus, Valley, Powder River, Park, Deer Lodge, Wibaux, Phillips, Missoula.

primarily for sale outside the county. The supporters of the bill came from counties with a large urban population such as Cascade and Silver Bow.

Senatorial failure to understand the importance and operation of pasteurization may also have contributed to the defeat of the bill in 1925. Before the legislature met in January 1925, little seems to have been said or written about the proposed legislation. The Senate was uninstructed presumably, and unprepared to accept what they but dimly understood. Farmer opinion on the bill may have been equally uninformed. In a letter to the editor of the Northwest Tribune of Stevensville David Lee wrote:

> I see our dairy commissioner, Mr. Webster, recommends a law compelling all cream and milk to be pasteurized before being made into cream and butter.
>
> Did you ever hear of a more brazen attempt to loot the common people in the interest of monopoly. I suppose there are hundreds of small dealers throughout the state, who have supplied themselves with the needful machinery to make their own ice cream.[49]

Sentiments such as these may have contributed to the defeat in 1925. After this, however, the men of the Dairy Division began an educational program.

George H. Webster, Chief of the Dairy Division, wrote articles for the daily and weekly papers. He felt that many people did not know what was meant by pasteurization and how the operation affected the milk and cream. Webster insisted that bovine tuberculosis could be transmitted to humans, especially children, and that pasteurization could prevent this.

---

[49] Northwest Tribune, XXXVIII, 47 (Stevensville, Montana) January 30, 1925, 2.

Other bacteria which caused diseases could also be eliminated from milk and cream, by this same process. Webster said that these diseases were no longer thought to be "visitations of Providence" or just happenings with no cause "assigned or even looked for." In 1925 he told the farmers:

> ...continued prosperity of dairying is dependent on making the quality of their products good enough to enlarge the demand for them and, above all, of such a character as to produce a feeling of security in the minds of the consumers - a feeling they are safe in using all they want at all times. This is becoming recognized by the best men in the dairy industry, and is one of the strong reasons they advance for pasteurization.[50]

But this educational process seems to have come too late to affect the vote in 1925.

In 1927, another bill was introduced to compel pasteurization of milk or cream used in the manufacture of butter and ice cream. This bill met very little opposition.[51] By 1927, the educational activities of the Dairy Division may have resulted in general public acceptance of pasteurization. But the bill of 1927 was also slightly different from that of 1925 and therein may lie the reason for Senatorial acceptance in 1927. The change in the bill of 1927 seems to have been made for the benefit of small creamerymen and those farmers who sold butter. The bill of 1925 required pasteurization by all processors. But the 1927 bill allowed creameries, or dairies, to sell unpasteurized butter or ice cream if they

---

[50]Montana Farmer, XII, 16 (Great Falls, Montana) April 15, 1925, 13.

[51]Montana House Journal, 1927, 405; Mont. Senate Journal, 1927, 399.

used milk or cream supplies from only one or two tuberculosis-tested herds.[52]

Other evidence supports the conclusion that the 1927 bill was designed to gain the favor of the small creameries and part-time dairy farmers. In 1920 the farmers made about six million pounds of butter and sold over a third of it. They made 5.5 million pounds in 1926 and probably sold nearly the same percentage.[53] Farmers, in 1925, undoubtedly would have objected to any law which prevented them from obtaining extra income from butter sales. Small creameries could accept the 1927 law because it allowed them to make ice cream and butter without putting in expensive equipment. The 1927 description of the creameries covered by the act apparently had an important part in clearing objections to that bill.

The Laws of 1929 contained several sections on pasteurization. For the most part these were restatements of legislation passed earlier, with only slight change.[54]

---

[52]Mont. Laws 1927, c. 136.

[53]U. S. Bureau of the Census, Fourteenth Census, 8; U. S. Bureau of the Census, United States Census of Agriculture, 1925, 24. The figures for butter sold in 1925 are not available, but the fact that almost as much butter was made on the farms as in 1920 indicates that farm sales of butter was still important. Furthermore, though farm butter sales declined through 1940, these sales were still over one-half a million pounds in 1940. See: U. S. Bureau of the Census, United State Census of Agriculture, 1945; I, Part 27 (Washington, United States Government Printing Office, 1946) 8.

[54]Mont. Laws 1929, c. 93, sec. 44-49. Instead of three methods accepted, only two were allowed in 1929.

Pasteurization, control of disease, and better standards of sanitation were important organized movements in the dairy industry during the twenties. The programs undertaken to obtain those ends led to an improved product and a more responsible industry. The depression that started in 1920 provided the catalyst for the reaction which in turn produced a greater maturity in the dairy industry. In 1920, dairying was disorganized, a catch-as-catch-can operation. Any sort of methods were used to produce this highly important food. The laws that existed either did not cover the condition fully, or they lacked teeth. But, by 1929, the industry was fairly specialized and under some control and regulation. Dairy farmers, with the help and guidance of the experts in the state agencies, had combined to reduce the incidence of tuberculosis in their cows. With the added co-operation of the processors, they raised the quality of the manufactured product. When the Great Depression struck, Montana dairymen were more able to meet it because they fought from a relatively secure position.

CHAPTER IV

ADJUSTMENT TO THE GREAT DEPRESSION

During the thirties, Montana dairy development was affected by the depression and the gradual return toward "normalcy." In the worst depression years dairy production increased. But as prices in other farm products began to climb out of the pit, farmer interest in dairying declined. The overproduction of milk products in this decade resulted in much activity designed to raise the quality of those products. When the "in and outers" finally left the dairy business by 1939, dairying was developed well beyond those primitive levels of organization, efficiency, and specialization which had been characteristic of the twenties.

For convenience in examination, the thirties may be divided into two periods, 1929 to 1934, and 1934 to 1939. In the first, that of the Great Depression, agricultural prices fell to the low point of the century. In the second part, the upward trends in agricultural prices resulted in a return to the usual farm enterprises. Each of these phases had its own effect on the Montana dairy industry.

In 1929, 34,440 farmers in Montana reported that they milked dairy

cows. By 1934, 36,500 farmers milked cows.[1] During this period, the general farm index of prices fell from 128 to 57 in 1932; returning to 30 in 1934. Wheat, for example, fell in price from 91 cents in 1929 to 43 cents in 1932, but rose slightly to 74 cents in 1934. Beef prices showed a price decline for the entire five years. From $9.10 a hundred pounds live weight in 1929, the value dropped to $3.35 a hundred in 1934. The index of prices of dairy products also dropped - from 128 to 78 between 1929 and 1934.[2] This general agricultural depression apparently caused many Montana farmers to start milking some cows in order to augment their reduced income.[3] Some farmers began diversified farming with dairying as an important part of the farm program.[4]

Coincident with the increased number of dairy cattle, milk production

---

[1]U. S. Bureau of the Census, Fifteenth Census of the United States: Agriculture: Montana, Statistics by Counties, Second Series, 1930 (Washington, United States Government Printing Office, 1931), 16; U. S. Bureau of the Census, United States Census of Agriculture: Montana, Statistics by Counties, Second Series, 1935 (Washington, United States Printing Office, 1936), 8.

[2]H. G. Halcrow, Prices Received by Montana Farmers and Ranchers by Months, August 1909 to December 1945 (Montana Agr. Sta. Exp. Sta. Mimeo Circular No. 45, Bozeman, Montana, July 1946), 7, 9, 22, 32.

[3]N. W. Johnson and M. H. Saunderson, "Physical Environment and Economic Factors Affecting Montana Agriculture," Types of Farming in Montana, Part I (Montana Agr. Exp. Sta. Bulletin No. 328, Bozeman, Montana, October 1936). 57; Great Falls Tribune, April 20, 1930, 4.

[4]Great Falls Tribune, April 2, 1930, 6.

fell. Over 87 million gallons were produced in 1929 but less than 77 million gallons came from the farm in 1934.[5] Poor feed was probably foremost among the reasons for this decline. This was the period when farmers learned to put up Russian Thistles for hay. Feed in many areas was short; some dairymen fed only roughage without grain. In areas east of the Rockies, shortage of stock water and poor pastures contributed to the drop in production.[6] The result was lower general production per cow and an over-all decrease in milk production.

In the second period, between 1934 and 1939, the number of milk cows on Montana farms dropped from 177,000 in 1934 to 130,000 in 1939. Total milk production also fell from nearly 77 million gallons to about 72.5 million.[7] At the same time farm prices for dairy products rose. Possibly the rising prices of beef, wheat, hogs and other farm products contributed to the decline in dairy activity. The index for beef prices rose steadily during this phase from 58 to 115. This represented an average increase in price of about $3.32 a hundred pounds, nearly double the return in 1934. The wheat index reflected an actual, though not steady upswing of 52 points from 1934 to 1937. However, the average value of a bushel of wheat took a sharp drop in the winter of 1937 and continued to the 5 year low in the winter of 1939. Overall, from 1934

---

[5]U. S. Bureau of the Census, Fifteenth Census of the Unites States, 1930, 16; U. S. Bureau of the Census, United States Census of Agriculture, 1935, 8.

[6]Great Falls Tribune, February 5, 1932, 12.

[7]U. S. Bureau of the Census, United States Census of Agriculture, 1935, 8; U. S. Bureau of the Census, United States Census of Agriculture, 1945, I,Part 27 (Washington, United States Printing Office,1946),76.

to 1939, wheat dropped in price from 74 cents a bushel to 53 cents. But the rise in the first few years undoubtedly drew farmers into that enterprise. Montana farmers found hog prices increasing in this period also. Again, the highest point was in 1937, but the general trend was upward.[8] Other farm prices, generally, were higher in 1939, with the result that fewer farmers milked cows. Thirty-six thousand five hundred farmers reported milk cows on their farms in 1934; but by 1939, only 29,470 of them included milking as part of the farm program.[9]

But the drop in milk production was not as great as the drop in cow population. This can be accounted for by the fact that the average production of milk per cow increased steadily between 1934 and 1939.[10] The activity of the dairy cow testing programs co-operating with the educational steps taken by the state dairy division and the extension service seems to have caused a more efficient production. Better feed and pastures in the last half of the thirties may also have contributed to the increased milk production per cow. Thus, testing, culling and feeding enabled fewer cows to give proportionately more milk.

---

[8] H. G. Halcrow, Prices Received by Montana Farmers and Ranchers, 7-40.

[9] U. S. Bureau of the Census, United States Census of Agriculture, 1935. 8; U. S. Bureau of the Census, United States Census of Agriculture, 1945, 76.

[10] United Stated Department of Agriculture, Agricultural Statistics, 1936(Washington, United States Government Printing Office, 1936), 259; United States Department of Agriculture, Agricultural Statistics, 1939(Washington, United States Government Printing Office, 1939), 373; United States Department of Sgriculture, Agricultural Statistics, 1941 (Washington, United States Government Printing Office, 1941), 422.

Though the output decreased, apparently the market was over-supplied. The surplus and the methods of reducing or eliminating it was the subject of news articles throughout the years.[11] These articles printed the opinions of the dairy experts, and the reports of such organizations as the Dairy Herd Improvement Associations. Quality production and efficiency in that production continued to be the theme of these reports, although other means to improve the dairymen's status were also proposed. At least one attempt was made to persuade national milk processors. Carnation and Borden, to establish plants in Montana.[12]

Montana surplus was part of the national trend. Montana was a butter exporting state since one-third of the output went to markets in other states. But the ability of the national markets to absorb all dairy products was limited. Since other states, many more advanced, also increased production in the depression years, Montana farmers found it especially necessary to seek ways to dispose of its surplus.[13] In 1930,

---

[11] At various times throughout these years the dairy surplus was the topic of news articles in the Great Falls Tribune and, especially, in the Montana Farmer. The reports of the Dairy Division of the State Department of Agriculture, Labor and Industry were also concerned with the disposal of the dairy surplus. See especially: Great Falls Tribune, August 15, 1924, 3; The State-Federal Crop Reporting Service, Montana, 1929 Farm Review Edition, V, 1,(Helena, Montana, 1930), 22-24.

[12] Great Falls Tribune, March 20, 1930, 5.

[13] Great Falls Tribune, May 17, 1932, 5; Wisconsin Crop Reporting Service, Wisconsin Dairying in Mid-Century (Wisconsin State Department of Agriculture, Bulletin No. 331, Madison, Wisconsin, May 1955), 30, 55.

Montana butter manufacturers made nearly 17 million pounds of butter, and exported over seven million pounds. By 1932, of the 14 million pounds manufactured, less than five million found market in other states.[14] This resulted in attempts by men such as A.H. Stafford, Commissioner of the State Department of Agriculture, to urge greater local use of milk and milk products. The Department of Agriculture sponsored a propaganda move to induce greater local consumption.[15] To encourage this use, quality production was considered imperative. Men such as E. J. Gilmartin, state chairman of the national campaign to stabilize the dairy industry; J. O. Tretsven, state dairy specialist; B. F. Thrailkill, chief of the Dairy Division of the State Department of Agriculture were outspoken on the necessity for better quality to induce greater consumption.[16] Thus it would appear that the necessity for quality production which arose from the depression soon led to organized, co-ordinate movements which eventually produced a more mature, responsible state dairy industry.

The catalytic agents in the dairy developments continued to be the official state organizations. Dairymen obtained help and information

---

[14] Montana Department of Agriculture, Labor and Industry, Division of Publicity, Montana: Resources and Opportunities, 1933, VII, 4 (Helena, Montana, May 1933). 78.

[15] Great Falls Tribune, May 17, 1932, 5.

[16] For examples of these opinions see: Great Falls Tribune, May 2, 1930, 19; Great Falls Tribune, March 31, 1930, 9; Great Falls Tribune, March 10, 1930, 11.

from the Dairy Division of the Department of Agriculture, Labor and Industry. The dairy farmers' activities were regulated by those in the Livestock Sanitary Board and the State Board of Health. As in the past, the veterinarians of the Sanitary Board inspected the cows and the farm dairy establishments.[17] The men of these agencies supplied the knowledge that enabled the state dairy industry to grow to the extent it did during the thirties.

Control of disease in dairy cattle continued to be the basic program in the state plans. Tubercular testing, under the supervision of the Livestock Sanitary Board, was still important. Testing and re-testing was the way to keep the disease in check. Major emphasis,however, shifted to a new disease, new in that it had not previously been considered important to humans. Bang's disease, or brucellosis, the disease that causes undulant fever in man, began to receive wide attention among veterinarians in the late 20's and early 30's. Alice Evans had pointed out the similarity in Bang's disease and Malta fever, Bruce's disease, as early as World War I. Not until 1929 was this fact widely accepted.[18]

---

[17] See the Reports of the Montana Livestock Sanitary Board and State Veterinary Surgeon for the years 1929 to 1939.

[18] Paul De Kruif, Men Against Death (New York, Harcourt, Brace & Co., 1932) 146-175. This work gives a good summary of the difficulty involved in the discovery of the relation between brucellosis and undulant fever. However, he does not give sufficient credit to the Department of Agriculture for earlier work done in this field. See for example: United States Department of Agriculture, Infectious Abortion of Cattle, Bureau of Animal Industry Circular No. 216 (Washington, Government Printing Office, 1913).

Then the work began to control the disease in dairy cattle. Dr. W.J. Butler of the Montana State Livestock Sanitary Board published an article on this disease in 1930 in which he noted:

> Practically every research laboratory in the United States is working on this disease. The Montana Livestock Sanitary Board is carrying on experiments with the intravenous injections of aniline dyes as a cure. There is every hope that a specific cure and preventative will be found but as yet such a cure or preventative is not known.[19]

In this article, Butler would only go so far as to say that "There is apparently a relation between Bang's disease or Infectious Abortion of cattle and other animals and Undulant Fever, a communicable disease, in man."[20]

Montana research in animal diseases received special impetus in May 1929, when the Veterinary Research Laboratory was established in Bozeman. It was created through an agreement with the Montana Agricultural Experiment Station, the Montana Stock Growers Association, the Montana Wool Growers Association and the Montana Livestock Sanitary Board. The laboratory undertook the research work that had been done by the laboratory of the Sanitary Board, thus leaving the latter free to carry on its primary function of diagnosis.[21]

---

[19] W. J. Butler, "Bang Disease," Contribution from the Montana Livestock Sanitary Board Laboratories, I. 2(Helena, Montana, March 1, 1932) 5-15. An earlier(1926) history of the dairy industry does not even mention Bang Disease: T. R. Pirtle, History of the Dairy Industry (Chicago, Ill., Mojonnier Bros. Co., 1926).

[20] W. J. Butler, "Bang Disease," 15.

[21] Report of the Montana Livestock Sanitary Board and Veterinary Surgeon, December 1, 1928 to November 30, 1930, I, 13 (Helena, Montana), 6-7.

Before 1929, the diagnostic laboratory had found evidence of bovine abortion, but in no report of the board is there any indication that the relation between this disease and the corresponding one in man was known. But knowledge of Bang's disease was growing. The number of reports revealing brucellosis increased from 32 (out of 85 examinations), in 1920-1922. to 1425 (out of 5102 examinations), in 1928-1930.[22] The state veterinarians recognized the significance of that increase, and started plans to study the effect and cause of the disease.[23] By 1932, the veterinarians were certain that undulant fever and Bang's disease were related, and had begun experiments with a vaccine for the prevention of brucellosis.[24] After 1934 the Federal government took an active part in plans to eradicate both brucellosis and tuberculosis. Federal funds were made available for this under the Jones-Connally Act of 1934 and were used to compensate owners for loss of the diseased cows.[25]

In Montana the brucellosis testing program was carried on by an agreement between the Montana Livestock Sanitary Board and the United

---

[22] Ibid., 19; Report of the Montana Livestock Sanitary Board and Veterinary Surgeon, for the Years 1921-1922, I, 5 (Helena, Montana) 15.

[23] Report of the Montana Livestock Sanitary Board, I, 13, 22.

[24] Report of the Montana Livestock Sanitary Board and Veterinary Surgeon, for the Biennium December 1, 1930 to November 30, 1932, I, 14 (Helena, Montana), 11-12.

[25] Murray Benedict, Farm Policies of the United States, 1790-1950 (New York, Twentieth Century Fund, 1953) 309.

States Bureau of Animal Industry. Veterinarians of state and federal agencies tested cows free of charge, and paid an indemnity for those condemned. The herd owner, having signed a contract, agreed to continue further tests intended to ensure disease-free herds. Repeated tests were necessary because Bang's disease was in continual growth. An insidious disease, some cases could not be detected in one or two tests.[26] This program, leading to brucellosis eradication, resulted in marked decrease in the incidence of the disease in the state during the thirties. Of all the cows tested in 1931, 23 per cent showed symptoms of the disease. The proportion fell to only .036 per cent by the end of 1929.[27]

Testing and slaughter was not the only method employed to reduce the prevalence of this disease in Montana herds. The Sanitary Board and the U. S. Bureau of Animal Industry experiments began in 1931 to find a suitable vaccine for calves. By 1938, a vaccine of low virulency was developed for use on calves four to eight months of age which proved safe to use. The Sanitary Board, in 1939, urged that co-operation in calf vaccination be an integral part of the plan to eradicate contagious abortion from herds in the state.[28]

---

[26] Reports of the Montana Livestock Sanitary Board and Veterinary Surgeon for the years 1933 to 1934.

[27] See the Reports of the Montana Livestock Sanitary Board and Veterinary Surgeon for the years 1930 to 1939.

[28] Reports of the Montana Livestock Sanitary Board, 1934, 1938, 1939.

The attempts to control brucellosis had its effect on the quality of the product and, in turn, on the stature of the dairy industry. In 1933, a number of cases of undulant fever were reported to the Sanitary Board by the State Board of Health and by the city and county health officer in Missoula. These cases were so important that the Sanitary Board was requested to help the dairymen of the Missoula area eliminate Bang's disease. The Board tested all cows supplying milk to Missoula. Milk from reacting cows was pasteruized, while milk from those showing udder infection was discarded. Due to limitation of funds, the Sanitary Board could only conduct one test. But the Board agreed to test, without cost, all samples sent to Helena if Missoula continued the program.[29] This one report of undulant fever in epidemic proportions seems to be the only one of its kind during this period. The reports of the State Board of Health indicate that this disease ranged from one to fifteen cases in a year, not an important amount.[30] But the possibilities that were presented by this disease, unchecked, were such as to make its control vitally important. Furthermore, many cases were probably not reported. Undulant fever may cause fevers and aches in the body but may not have sufficient affect to send the person attacked to the doctor. The fever may strike just hard enough to have a debilitating effect and not hard enough to put

---

[29] Reports of the Montana Livestock Sanitary Board, 1934.

[30] Montana State Board of Health Biennial Report 10th-15th, 1919-1930; 18th Annual Report of the Momtana State Board of Health, 1935-1936.

the sufferer in bed. Thus, from the standpoint of increasing the efficiency of man, the control of brucellosis was, and is, vitally important.

Control of bovine tuberculosis and brucellosis were two of the organized plans to raise the standards of the dairy industry. While these dealt with disease control, another program concerned the movement to raise efficiency in milk production. Organization of the farmers on a regional basis into cow-testing associations contributed to the development of better cows in the state and thus to the growth of a specialized industry. Cow-testing developed as early as the 1880's in the United States. These were, however, usually restricted to dairy farms that wished to advertise the high productive capacity of their herds in order to increase their sale of breeding stock. The introduction of the Babcock test enabled the smaller farmer to make use of testing as a means of separating his good milkers from the cows that merely boarded at the farm. In 1906 the first cow-testing association of this type was organized in the United States.[31] By April, 1924, Montana had four such associations.[32] These associations consisted of a number of farmers organized on the basis of districts or counties. The group hired a man to visit each member farm to test the butter-fat production of each cow and the herd. On the basis of the butter fat test, and comparing it with

---

[31]United States Department of Agriculture, Yearbook of Agriculture, 1936 (Washington, United States Government Printing Office, 1936) 1106.

[32]Montana Cooperative Crop Reporting Service, Montana Farm Review, 1923, II (Helena, Montan, 1923) 4.

feed and labor expenses , the dairyman could determine the profit made from each cow. Thus, by culling the poor producers, the dairy farmer could raise the efficiency of his farm enterprise. The program, aided by the State Extension Service and the county agents, was effective. In 1924, average production per cow was 3740 pounds of milk; by 1929 this rose to 4335 pounds. The Great Depression caused an influx of non-dairy farmers into milk production for a cash income. This resulted in a much lower average production per cow, since many of the newcomers were not as efficient as full-time dairymen. After 1934, when many of these part-time dairy farmers returned to other farm enterprises, average milk production began to rise again. Where one cow produced only 3821, her daughter's generation gave 4799 pounds each in 1939.[33] The farmer was interested in raising the average for the individual cow and the herd average as well.[34]

Cow-testing improved the unity production, but, just as important, it also enabled the dairymen to feed the cow according to need. A cow producing a high test milk required more nutritious feeding than a low testing animal. In Montana, as early as 1911 the Experiment Station published a pamphlet containing information on feeding according to the

---

[33]Compiled from: United State Bureau of the Census, United States Census of Agriculture: Montana, Statistics by Counties, 1925 (Washington, Government Printing Office, 1926) 24; United States Bureau of the Census, United States Census of Agriculture: Montana, 1935, 15: United States Bureau of the Census, United States Census of Agriculture, 1945, 76. The standard of 8.6 pounds per gallon of milk has been used in conversions.

[34]Great Falls Tribune, January 24, 1930, 15.

butterfat test.[35] But this information was useless to the farmer until he obtained the means to determine the butterfat test. This was provided by the Dairy Herd Improvement Associations that began in 1924 and continued through the thirties to the present.

Some farmers appear to have been carried away with the idea of breeding a better milk cow, implicit in testing. What they wanted seems to have been:

> ...a breed of cattle that will produce milk as rich in fats as that of the Jersey, as highly colored as that of the Guernsey, and in amounts such as that of the Holstein. The animals should also have the rustling qualities of the Hereford, the hardiness of the Galloway, the gentleness of the Shorthorn, and when fattened, the fleshing qualities of the Angus.[36]

This combination of qualities was beyond the hopes or aspirations of the experienced breeders. They felt that as much depended on the man who milked the cows. Some men seem to be temperamentally unsuited for a career in dairying. But cow-testing helped spread information leading to greater dairy efficiency. The tester, when visiting the farms, tended to pass on new ideas from farm to farm thus helping the dissemination of information.[37] In many ways the cow-testing program was of vital significance in the growth of Montana's dairy industry.

---

[35] R. W. Clark, Dairying in Montana (Montana Agr.College Exp. Sta. Circular 10, Bozeman, Montana, November 1911) 24-31.

[36] Great Falls Tribune, January 24, 1930, 15.

[37] Great Falls Tribune, November 6, 1930, 5.

Organized plans developed in Montana during the thirties also concerned the quality of the milk or cream after it had been produced by the cows. During the twenties, this activity resulted in controls aimed at raising standards in cream stations. Also begun in that period was a drive to institute a cream grading plan for the same reasons of quality. It was, however, abortive and the major activity began after 1929.

An editorial in the Montana Farmer in 1924 is the first known indication that attention was being given to cream grading. This editorial was written on the eve of the 1925 legislative assembly and a few weeks before the Montana Dairymen's association met in Bozeman. The editor pointed out the need for a cream grading plan. Montana butter export surplus was marketed on its merits in competition with other butter producing areas. The low standards prevailing in Montana resulted in an inferior product that obtained an inferior price. Since there was no standard grading system in the state, no premium for the best grades, producers had no incentive to ship a quality product. The careless dairy farmer received as high a price as one who took great care of the cream. As a way to correct this situation, the editor of the Montana Farmer advocated a state cream grading law that would improve the quality of the cream. He noted good results achieved under similar circumstances in Canada.[38]

The state Dairymen's Association met in January of 1925, with cream grading one of the important items on the agenda. George H. Webster,

---

[38] Montana Farmer, XII, 8(Great Falls, Montana) December 15, 1924, 8.

chief of the dairy division of the state Department of Agriculture, presented a proposed cream grading law. He said that, as the system operated in Canada, it resulted in higher quality output and an increased return to the farmer. The cost of operating the law, according to Webster, would be outweighed by the higher farm prices. As a result of the discussion, the Montana Dairymen's Association went on record as favoring a state cream grading law.[39]

Opposition, apparently, was strong enough to prevent introduction of a cream grading bill in 1925 or for several years thereafter. The Senate and House Journals have no record of any such measures entering the legislature. Opposition shortly appeared in Ravalli county which, by 1929, was the leading dairy region in the state. In a letter to the editor of the Stevensville Northwest Tribune, David Lea presented arguments against a law for cream grading. His arguments were based on a belief that the law would be unwise at that stage of dairy development. The cost of the system, to be effective, would be prohibitive according to Lea. Fundamentally, his arguments seem to have been based on a fear of too much government interference in private rights. He wrote:

> Let us have a little sense. We are in danger of being supervised to death. Cut down our force of office holders and the corresponding expenses, rather than sit up nights to devise more. If our commissioner [of agriculture] really wants to help the dairy industry of Montana, if he can get up some scheme to assure an honest cream test, and a square deal to all, both big and little producers, it will do more to help the dairymen than all the state appointed cream graders he can scare up...[40]

---

[39] Montana Farmer, XII, 11(Great Falls, Montana) February 1, 1925,13.

[40] Northwest Tribune, XXXVIII, 47(Stevensville, Montana)January 39, 1925, 2.

Lea clinched his argument by observing:

> Let our servants at Helena cooperate with our Governor in his desire to economize in every way possible without destroying efficiency and people will be grateful, and welcome you home again soon, and possibly send you back someday a little higher up.[41]

The fact that no legislation was introduced concerning grading suggests that these arguments, or similar ones were effective. The demand for honesty in cream grading seemed more important to the farmer than production of a quality product. The dairyman, apparently could not see the long range benefits of grading in the resulting improvement of quality. Evident in the arguments against the proposed plan was the fear of government invasion of private rights. The New Deal was still several years away, and so was the worst of the depression years. Men had to be conditioned by the ravages of Want before they could compromise their theories on the efficacy of private enterprise. As of 1925 in Montana they still hesitated to allow government to enter the hallowed ground of personal, private enterprise, even for regulatory purposes. But the first faltering steps had been taken, and the depression provided the impulse for more.

Interest in grading seems to have lagged between 1925 and 1929. At least it was not mentioned until February 1929. At the Holstein-Freisian meeting in Great Falls, 1929, B. F. Thrailkill, now chief of the Dairy Division, spoke on efforts being made to secure a cream grading law. He gave a shortage of funds as one reason for the lull in grading activity.[42]

---

[41] Ibid.

[42] Great Falls Tribune, February 27, 1929, 8.

Funds appropriated for the Dairy Division by the 1927 legislature amounted to only $3,000 a year. In 1929, the legislature allowed the Division $8,000 a year.[43] This increase may have given the Dairy Division the means to carry on a search for a workable cream grading law.

From 1929 to 1930, men of the Dairy Division carried on experiments aimed at developing a practical cream grading system for Montana. The system was eventually devised and put into trial practice in various regions in the state, with the co-operation of local farmers and processors. On June 26, 1930, the experiment began in the counties west of Missoula. There only 40 per cent of the cream graded number one the first week. By August, however, the proportion rose to 86 per cent, indicating to the experts that, with proper incentive, dairymen would soon learn to care for their cream properly. The dairy specialists concluded, as a result of the experiment, that it would be easy to enforce a cream grading law. On the basis of these trials, they planned to introduce a bill in the 1931 legislature designed to improve the quality of Montana butter. These specialists expected this improvement in quality to increase the cash returns to the farmers.[44]

Interest in the grading system was evident in the newspapers of the period. The Montana Farmer still favored cream grading, noting that the

---

[43] Mont. Laws 1927, House Bill 164; Mont. Laws 1929, House Bill 344.

[44] Montana Department of Agriculture, Labor and Industry, Division of Publicity, Montana, Biennial Report, 1928-29, 1929-1930, I, 3 (Helena, Montana, October 1930) 22-23.

state dairy farmers had increased the quantity of milk and cream produced, but had failed to keep pace in quality. Other states, such as Washington, had increased their cream quality with similar grading laws.[45] The Great Falls Tribune reported the progress of the experiment in western Montana, emphasizing that the road to quality would also give the farmer higher returns for his products.[46] This theme was repeated in several speeches made by B. F. Thrailkill in 1930.[47] By means of these published reports and opinions, the Dairy Division prepared the grounds for a state-wide grading law. In 1931 the grading bill was introduced into the legislature.

The propaganda was successful. In 1931, the legislature passed House Bill 150; it revised the dairy laws and included provision for grades of milk and cream intended for manufacture into butter, cheese and ice cream.[48] The proponents expected the law to produce an increase quality which would allow Montana dairymen to compete successfully in the national markets. Thrailkill said the law would also result in a better

---

[45] Montana Farmer, XVI, 14 (Great Falls, Montana) March 15, 1929, 24.

[46] Great Falls Tribune, October 4, 1930, 15.

[47] Montana Farmer, XVII, 15 (Great Falls, Montana) April 1, 1930, 22. Montana Farmer, XVII, 23 (Great Falls, Montana) August 1, 1930, 5. Northwest Tribune, XLIV, 33 Stevensville, Montana) October 16, 1930, 8; Northwest Tribune, XLIV, 42 (Stevensville, Montana) December 18, 1930, 1.

[48] Mont. Laws 1931, c. 39. sec. 59.

product for local consumers. It would thus increase that market. In short, the experts agreed that dairymen would benefit from better export and domestic markets.[49]

Then in 1933, the legislature emasculated the cream grading law of 1931. The amendment of 1933 struck out the extensive system of grades then in existence, and left only a restriction on adulterated and unwholesome milk and cream. Bills introduced in 1935 and 1939 apparently were intended to revive some form of grading. But these were defeated by adverse committee reports, by postponement of consideration, or by crippling amendment.[50]

Why was a cream grading law passed in 1931, only to be devitalized in 1933? As has been shown, the dairy division specialists actively advertized and educated before obtaining the law of 1931. The Senators who opposed the bill then came from counties where cream sales on a small scale were important.[51] In Ravalli county, for example, small farmers obtained much of their income from such activity. As the depression gained momentum, more and more farmers produced cream as a side-line. These part-time dairymen may have found that the grading system prevented

---

[49] Northwest Tribune, XLV, 3 (Stevensville, Montana) March 19, 1931,1.

[50] Mont. Laws, 1933, c. 39,sec. 59; Mont. House Journal 1935, 437,804; Mont. Senate Journal 1935, 445, 649-650; Mont. House Journal 1939, 411; Mont. Senate Journal 1939, 339-340.

[51] Mont. Senate Journal 1931, 315-316. Opposition was composed of Senators from the following counties: Petroleum, Hill, McCone, Meagher, Ravalli, Richland, Granite, Daniels, Wibaux, and Deer Lodge.

them from obtaining the maximum income. Their complaints, on reaching the legislators, might have caused the increased opposition to grading in 1932.

In the thirties milk marketing controls were introduced in an effort to regulate the retail price of dairy products. These controls were also intended to improve the financial status of Montana's dairy farmers. Furthermore, they undoubtedly were expected to prevent a regression in the quality of manufactured dairy products. The general depression caused a decline in prices of milk products. The drop in income meant that the farmer had to reduce his operating expenses. This he apparently did by eliminating the more expensive operations involved in quality production. By controlling the retail prices of dairy products, the leaders in the industry hoped to help the dairy farmer maintain a reasonable net return. This, the specialists felt, would enable dairymen to keep the quality standards high. Price regulation was aimed at eliminating the milk and cream "bootlegger" who sold his dairy products directly to the consumer without bothering with the formalities of cattle and diary inspection. Since these "bootleggers" did not have the expenses that legitimate producers did, they would, and did, sell at cut-rate prices. Dairymen in Montana, as in other states, faced the problem of maintaining the quality of their product in a period of reduced income.[52] Dairy experts hoped that milk marketing controls would enable dairy farmers to continue producing quality milk and cream.

---

[52]E. L. Rada & D. B. DeLoach, An Analysis of State Laws Designed to Effect Economic Control of the Market Milk Industry (Oregon State College, 1941) 5-23.

Montana control programs began in 1934 with voluntary marketing agreements under a statewide master code. This code under the N.I.R.A., was set up by the Montana Dairy Association, an organization of men from all divisions of the industry and supported by the Dairy Division of the Department pf Agriculture, Labor and Industry. The association divided the state into two zones with butterfat prices in each section based on the Seattle price. The dairymen in the association set the price east of the Rocky Mountains at three cents less than the base price, while they established the price at two cents less in the western region. By March 1934, the dairymen in Great Falls and in Butte had established milk control agreements.[53] Apparently voluntary co-operation was not effective. In May 1934, Kalispell merchants found that their business fell off when they raised their prices to fit the codes. As a result, they returned to the former rates.[54]

In the meantime, states such as New York, Massachusetts, Pennsylvania, Washington and others enacted milk control legislation.[55] Montana followed in 1935 with a bill introduced by two senators from Sheridan and McCone Counties. The bill passed with some opposition which did not seem to follow any particular pattern.[56]

---

[53]Great Falls Tribune, March 30, 1934, 15.

[54]Great Falls Tribune, May 7, 1934, 17.

[55]Rada & Deloach, Analysis, 2021.

[56]Mont. House Journal, 1935, 730; Mont. Senate Journal, 1935, 525.

The purpose of the law was explained by the Milk Control Board members in a news release. Their aim was:

> ...to eliminate that dangerous element of supply so numerous throughout the state known as the chisler, and the price cutter, who also has been uncontrolled and dangerous producer of this important and necessary food commodity, coming into competition with the reverse type, the legitimate producer, who carries a heavy investment in the required equipment necessary to the production of pure, wholesome, safe milk and cream from healthy dairy cows, and operating under license and inspection service of the Montana Livestock Sanitary Board.[57]

This legislation, aimed directly at depression-bred dairymen, met opposition, as would be expected.

The stimulus for the opposing views apparently came from Ravalli county. Though this county contained some fine dairies, it also included many small farmers who depended on the sale of cream in small quantities for much of their cash income. H. H. Longnecker, Representative from Ravalli county, introduced a bill into the 1937 assembly intending to dissolve the Milk Control Board. It was defeated on an adverse committee report.[58] Longnecker's proposal grew out of anti-control sentiment in Ravalli county. There, John G. Howe, a Hamilton milk processor, violated the provisions of the law by selling his products below the prescribed price level. He was tried in Justice Court three times and each time acquitted. Many of the consumers in the county also opposed the price fixing features of the Milk Control law.[59]

---

[57]Montana Milk Control Board, Milk Control Board, Operation, Objective. Future, News Release, October 12, 1935, 1.

[58]Mont. House Journal 1937, 42, 71.

[59]Northwest Tribune, February 13, 1939, 5.

The difficulty of obtaining decisions against price violators was not limited to Ravalli county.[60] To strengthen the power of the Board the legislature passed a law in 1939 redefining the duties of the Board and specifying more fully the penalties it could impose on violators.[61] Though opposition to milk controls existed, the advocates were strong enough to meet the objections and provide remedies to close the loop-holes in the law.

Milk control legislation met the needs of the times. It was found useful, and law still regulates the prices of Montana milk. Price control contributed to the growth of dairying in the state by preventing a return to the chaotic conditions that had prevailed after World War I. By checking great price declines, the Board helped consciencious dairymen to obtain a better net return on their investments. This in turn contributed to the maintenance of higher quality products and thus to a more healthy community. Furthermore, milk price regulation illustrates the shift from laissez-faire capitalism to modified free enterprise that exists today.

During the Great Depression Montana dairymen continued to carry on co-ordinated programs designed to raise the quality of dairy products. These plans, regulating production and distribution of dairy products, contributed to the construction of a more efficient industry based on the sound foundation of quality. At times the plans met partial failure, as in cream grading. At other times they ended successfully, as in price

---

[60] Great Falls Tribune, February 13, 1939, 5.

[61] Mont. Laws 1939, c. 204.

control. But the end result was a better organized, more mature, highly specialized industry. When the part-time dairy farmers began to abandon milk and cream production, the industry had achieved greater price stability and more efficient production. The economic pressures brought to bear by the depression were the primary forces that caused these changes in Montana's dairy enterprise. By 1939, Montana dairying was truly a modern industry.

CHAPTER V

CONCLUSION

The twenty years between 1919 and 1939 was a period of considerable financial distress for Montana dairymen. The dairymen not only had to contend with the depression in agriculture, they also had to meet the added competition presented by the influx of farmers in milk production which resulted from the general farm depression. Falling farm incomes drove many non-dairy farmers to seek new ways to obtain ready cash. One alternative was to milk cows. And they did milk them. The Montana cow population rose from 127,000 in 1920 to a high of 177,000 in 1935. Over 7,000 farmers added milk cows to their enterprises during this time. Although the number of farmers reporting milk production rose during the depression, by 1940 about the same number milked cows as had milked them in 1920. It seems evident then, that through the crisis years a core of about 29,000 farms were dairy farms.[1] The rest belonged to part-time dairymen who returned to other enterprises when farm and market conditions permitted. These extra dairy farmers were evidently inefficient and careless producers. But the lower quality milk and cream they sold tended to reduce the general quality of all the Montana product. This, in turn, added to the problems that the local dairymen had to solve. In order to raise their own standards, they had to demand better quality from those

---

[1]See Note 14, Chapter III.

who did not intend to remain in the business. Thus the depression effects were compounded and complicated by these part-time milk producers. In countering them, the hard core of real dairy farmers inadvertently forced their own standards higher.

Thus the depression was not without its beneficial results for Montana dairymen. The dairy farmers developed methods to raise their operational efficiency and to improve the standards of quality in their product. By regulating their industry, the dairymen formalized the production of milk. By 1939, the state dairymen had advanced from a haphazard production of a relatively unsanitary product to a specialized, responsible, orderly and efficient production. As a result of the organized plans carried out between 1919 and 1939, the dairy farmers began to supply the public with better quality, more healthful milk and cream. First, the dairymen reduced the incidence of disease in their herds. Second, they began to send better, cleaner, and more wholesome milk and cream to the factory. Third, the dairymen produced more efficiently. With nearly the same number of cows, they produced about 50 per cent more milk.

But the dairy farmers did not act alone. Throughout the twenty years, the leadership and responsibility for solutions rested on the shoulders of the men in the various state institutions. They knew the problems. The dairy inspectors and state veterinarians visited the farms and heard the farmers' complaints. The agents also had access to the experiment stations and colleges and to the new ideas that grew out of

the activities carried on there. These experts were in a position to take the broad view of farm production and marketing problems. By correlating the views of problems and new ideas, they could present some practical solutions. While the dairy farmer knew he was suffering financially, he did not know why. He was too close to the farm and was aware of the circumstances only in his region. The government, however, could examine the problems with relative objectivity and then make use of the experience gained in other parts of the country or even in other countries. The advances made in the Montana dairy industry may then be credited, in large part, to the men in government service. From the earliest signs of distress in the twenties, to the end of the thirties, these men contributed to the progress of the state's growing dairy industry. An examination of their activities in these depression years supports the view that public interest in this vital industry was well tended by the government agents. In working for the benefit of the dairy farmers, they were consistently concerned with the maintenance of quality in the milk and cream industry.

In developing their plans for solving the problems in dairying, the state agents used the experiment stations and the agricultural college. Furthermore, the knowledge obtained in other parts of the country was available to the Montana experts. These reservoirs of knowledge were the institutions that grew up under Federal aegis. The agricultural college, the experiment stations, the county agents-all information disseminating departments-were made possible because of federal interest

and support.

Education was of prime importance to the development of the Montana dairy industry. In several instances during this period, it has been seen that only by informing the farmers, the public, and the legislators, could the new ideas and methods be successfully presented. Sometimes, particularly in cream grading, education was not sufficient. Innovations were rejected especially when the suggestions worked to the immediate disadvantage of the farmers. The desire for better methods apparently came from the economic distress of the times. Any new ideas were acceptable if they provided some financial relief. But, if the new methods resulted in added expense, the farmers were quick to object and seek some modification.

This thesis has been concerned with local, statewide activities that led to a more highly developed dairy industry, Yet, in local actions the influence and support of federal agencies was often evident. Federal aid to the state dairy farmers was important in education and research. Important help was given to the programs for reducing cattle disease. The national government supported research projects to determine the causes and effects of those diseases. Furthermore, money was available from federal sources to support state plans to test cattle and slaughter infected cows. Federal activity was important, too, in the movement to improve quality and sanitation in milk production. The Federal Act of 1906, for example, set the stage for state food and drug laws. The United States Department of Agriculture provided much information and

aid to local agents.

The isolation and self-dependence of the pioneer settlements may have provided reason and excuse for sectionalism and jealous protection of state rights. In the twentieth century, however, distances contracted and what once were local problems with local ramifications became national. As such, they were approached from a broader viewpoint. The activities of the federal government in tuberculosis control and milk and cream standards helped solve strictly local problems of national importance.

Montana dairy problems were similar to those of the older regions at an earlier date.

> While much of the butter and cheese placed upon the market was of very poor quality, the spread of knowledge concerning the manner of care and making, together with discrimination in price among buyers, was leading to decided improvement in quality.[2]

This quotation might have come from a publication on Montana dairy development during the twenties. However, it was written in reference to dairying in the north-eastern United States about 1840. That this state followed in the footsteps of the other, more advanced communities seems evident.

But Montana development was modified by conditions peculiar to the region. In the east, the early development of large urban centers created a demand for milk and its products. This demand did not affect Montana dairymen until much later. But improved methods of transportation and refrigeration permitted entrance to the large urban markets when Montana

---

[2]P. W. Bidwell and J. I. Falconer, History of Agriculture in the Northern United States, 1620-1860 (Washington, Carnegie Institute of Washing, May 1925) 424-427.

dairy farmers had local surplus. Refrigerated cars had been used as early as 1872, and when, after World War I, local producers created a surplus of manufactured dairy products, the dairymen were able to send their butter and cheese to national markets in Chicago and, more frequently, to the Pacific Coast.

Furthermore, when the state dairy industry began to grow fairly rapidly, the road had already been surveyed. Institutions had been developed in the nation which facilitated development here. The United States Department of Agriculture was already concerned with dairy problems. Other states had started institutions such as the Northwest Dairymen's Association, begun in 1867 in Illinois and Wisconsin.[3] Laws and state agencies had been tried elsewhere, and provided a precedent for Montana experience.[4] Thus Montana dairy development was assisted by the experience of other areas. As a result, this state probably was able to make more rapid strides toward maturity than had been possible in the older regions that paved the way.

But Montana was limited in the possibilities for dairying. The application of the von Thünen thesis to Montana as of 1920 indicated the state was outside the region of efficient mass production for dairying.[5]

---

[3]F. A. Shannon, The Farmer's Last Frontier (New York, Farrar & Rhinehart, Inc., 1945) 256-258.

[4]Ibid., 269-270.

[5]See Note 3, Chapter I.

Technological advances within the industry and in transportation and storage facilities had modified this analysis by 1939. By increasing the productivity of the milking herd, by making better use of the newer mechanical and administrative developments, the dairymen of this state were in a better position to compete with the older communities. By 1939, dairying depended less on proximity to urban markets than on natural ability of the land and farmers to produce the desired quality of milk products.

For twenty years, 1919-1939, government intervention in private enterprise, i.e., dairying, continually increased even though opposed. As the laissez-faire philosophy declined in practice, health and sanitation standards rose in the state's dairy industry. Both the consumer and the farmer benefited from this change. Consumers received a better quality product in 1929 than in 1919. Moreover, more uniform standards meant that milk bought one day tended to be as wholesome as that bought the day before. The dairy farmer received aid in reaching more efficient production. He also had more assurance of an equitable price for his product. The processor, too, obtained advantage. The price fixing method set the retail price and allowed the manufacturer to receive his per cent profit whether the price was high or low. The farmer, whose profit was thus more elastic, could offset this disadvantage by more efficient production.

Twenty years of depression compelled Montana dairymen to slough off inefficient, unsanitary practices in vogue before 1919. Between 1919 and 1939, disease control programs, sanitary methods and plans designed to maintain gains in specialization contributed to maturity in dairying. By

1939, the dairy farmers, with government help, developed standards of production that formed the base for supplying war demands. The growth of a specialized, organized, responsible dairy industry was one of the beneficial results of an otherwise oppressive period - the depression years of 1919-1939.

BIBLIGRAPHY

I. Documents

Biennial Reports of the Department of Labor and Industry, 1909 to 1913 and 1919-1920.

Biennial Report of the Montana State Board of Health, 1919 to 1932 and 1939 to 1940.

Department of Agriculture, Labor and Industry, Montana, Biennial Report, 1920, Vol. I, No. 4. Helena, Mcntana, Division of Publicity. December 1926.

--------, Montana, Biennial Report, 1928-29, 1929-30, Vol. V, No. 3. Helena, Montana, Division of Publicity. October 1930.

--------, Montana, Biennial Report, 1930-1932, Vol. VII, No. 2. Helena, Montana, Division of Publicity. August 1932.

--------, Montana, Resources and Opportunities. 1933, Vol. VII, No. 4. Helena, Montana, Division of Publicity. May 1933.

Montana Co-operative Crop Reporting Service, Montana Farm Review, Vol. I, II, III. (1922-1924) Helena, Montana.

Montana, House Journals, 1907 to 1939.

Montana Laws, 1907 to 1939.

Montana Revised Codes, 1907, 1921, 1935, 1947.

Montana Senate Journals, 1907 to 1939.

News Release Montana Milk Control Board, Milk Control Board, Operation, Objective, Future, October 12, 1935.

Report of the Bureau of Agriculture, Labor and Industry of the State of Montana, 1900 to 1912.

Report of the Montana Farmers' Institutes, 1902 to 1905, 1907 to 1909, 1913 to 1914, 1916, 1918.

Report of the Montana Livestock Sanitary Board and State Veterinary Surgeon, 1921 to 1941.

Report and Official Opinions of the Attorney-General, Montana, 1918 to 1940.

State-Federal Crop Reporting Service, Montana, 1927 Farm Review Edition, Vol. II, No. 6. Helena, Montana. Division of Publicity. April 1928.

--------, Montana, 1928 Farm Review Edition, Vol. IV, No. 1. Helena, Montana, Division of Publicity. June, 1929.

--------, Montana, 1929 Farm Review Edition, Vol. V. No. 1, Helena, Montana, Division of Publicity. June 1930.

--------, Montana, 1930 Farm Review Edition, Vol. VI, No. 1, Helena,Montana, Division of Publicity. June 1931.

U. S. Bureau of the Census, Twelfth Census of the United States, Census Reports, Agriculture, 1900, Vol. V. No. 1. Washington, United States Census Office. 1902.

--------, Thirteenth Census of the United States: Agriculture: Montana, Statistics for the State and its Counties, 1910. Bulletin. Washington, Government Printing Office. n.d.

--------, Fourteenth Census of the United States: Agriculture: Montana, Statistics for the State and its Counties, 1920. Bulletin. Washington,

--------, Fifteenth Census of the United States: Agriculture: Montana, Statistics by Counties, 1930. Bulletin. Washington, Government Printing Office. n.d.

--------, Sixteenth Census of the United States, Agriculture, 1940, Vol. III. Washington, United States Government Printing Pffice. 1943.

--------, United States Census of Agriculture: Montana, Statistics by Counties, 1925. Bulletin. Washington, Government Printing Office.n.d.

--------, United States Census of Agriculture: Montana, Statistics by Counties, Second Series, 1935. Bulletin. Washington, Government Printing Office, n.d.

--------, United States Census of Agriculture: Montana, 1945, Vol. I, Part 27. Washington, Government Printing Office. 1946.

United States Department of Agriculture, Agricultural Statistics, 1936 to 1940. Washington, Government Printing Office.

--------, Yearbook of Agriculture, 1899, 1936, 1940. Washington, Government Printing Office.

STATE AND FEDERAL BULLETINS

Baumgartel, W. H., A Social Study of Ravalli County, Montana, Bulletin 160. Bozeman, Montana, Montana Agricultural College Experiment Station, September, 1923.

Brence, J. L. and Nelson, J. A., The Vitamin A Potency of Montana Butter, Bulletin No. 465. Bozeman, Montana, Mont. Agri. College Exp. Sta., November 1949.

Butler, W. J., Bang Disease, Contribution from the Montana Livestock Sanitary Board Laboratories, Vol, No. 2. March 1, 1930.

Clark, R. W., Dairying in Montana, Circular No. 10. Bozeman, Montana, Mont. Agri.Exp. Sta., November, 1911.

Dickson, W. F. and Kopland, D. V., Feeding Dairy Cows With and Without Grain. Bulletin No. 293. Bozeman, Montana, Mont. Agri. Exp. Sta. October, 1934.

Elliot, W. J., Home Cheesemaking, Circular No. 1. Bozeman, Montana, Mont. Agri. Exp. Sta. May, 1908.

Fisher, R. W., An Orchard Study of the Bitter Root Valley, Bulletin No. 66. Bozeman, Montana, Mont. Agri. Exp. Sta. January 1907.

Halcrow, H. G., Prices Received by Montana Farmers and Ranchers by Months, August 1909 to December 1945. Mimeo Circular No. 45. Bozeman, Montana, Mont. Agri. Exp. Sta. 1946.

Johnson, N. W., Types of Farming in Montana, Part I, "Physical environment and Economic Factors Affecting Montana Agriculture", Bulletin No. 328. Bozeman, Montana, Mont.Agri. College Exp, Sta. October,1936.

Johnson, S. E., An Economic Analysis of Production Problems in the Bitter Root Valley, Bulletin No. 220. Bozeman, Montana, Mont. Agri. Exp. Sta. January, 1929.

--------, et al,Organization, Feeding Methods and Other Practices Affecting Returns on Irrigated Dairy Farms in Western Montana, Bulletin, No. 264. Bozeman, Montana, Mont. Agri.Exp. Sta. June, 1932.

--------, Present and Prospective Development of Farming Systems in Western Montana, Bulletin No. 239. Bozeman, Montana, Mont. Agri. Exp. Sta. December, 1950.

Jones, R. C., Creamery Organization and Management, Circular No. 23. Bozeman, Montana, Mont. Agri. Exp. Sta. February, 1913.

--------, Farm Butter-making Creamery Industry in Montana, Circular No. 32. Bozeman, Montana, Mont. Agri. Exp. Sta. November, 1913

Korzan, G. E., Costs of Distributing Milk in Montana, Bulletin No. 462. Bozeman, Montana, Mont. Agri. Exp. Sta. July, 1949.

Kraenzel, C. F., The Relief Problem in Montana, Bulletin No. 343. Bozeman, Montana, Mont. Agri. Exp. Sta. June, 1937.

Kraenzel, C. F., and Parsons, O. A., Agricultural Planning, Its Economic and Social Aspects, Bulletin No. 391. Bozeman, Montana, Mont. Agri. Exp. Sta. June, 1941.

Montana Agriculture at Mid-Century, Bozeman, Montana, Mont. State College Agri. Exp. Sta. 1951.

Moore, V. A., Bovine Tuberculosis, Mont. State Veterinary Department Bulletin No. C-No. 1. April, 1901.

Pinckney, R. M., and Burke, E., A Report on Montana Climate, Bulletin No. 99, Bozeman, Montana, Mont. Agri. Exp. Sta. March, 1914.

Rada, E. L., and DeLoach, D. B., An Analysis of State Laws Designed to Effect Economic Control of the Market Milk Industry, Oregon State Monographs, Studies in Economics, No. 2. Corvallis, Oregon, Oregon State College. December, 1941.

Renne, R. R., Financial Facts of Montana Counties, Mimeo Circular No. 1. Bozeman, Montana, Mont. Agri. Exp. Sta. August, 1937.

--------, Readjusting Montana's Agriculture, Vol. VIII, "Tax Delinquency and Mortgage Forclosures," Bulletin No. 319. Bozeman, Montana, Mont. Agri. Exp. Sta. May, 1936.

Riley, E. A., Artificial Insemination, Circular No. 63. Bozeman, Montana, Mont. Agri. Exp. Sta. February, 1917.

Slagsvold, P. L., and Mathews, J. D., Some Economic and Social Aspects of Irrigation in Montana, Bulletin No. 354. Bozeman, Montana, Mont. Agri. Exp. Sta. January, 1938.

Slagsvold, P. L., Readjusting Montana's Agriculture, Vol. II, "Montana Farm Prices" Bulletin No. 308. Bozeman, Montana, Mont. Agri. Exp. Sta. January, 1938.

--------, Readjusting Montana's Agriculture, Vol. VI, "Montana 's Irrigation Resources," Bulletin No. 315, Bozeman, Montana, Mont. Agri. Exp. Sta. March, 1936.

Tretsven, J. O., The College Dairy Herd; Development, Care and Management, Bulletin No. 141. Bozeman, Montana, Mont. Agri. Exp. Sta. November, 1921.

--------, Feeding and Managing Dairy Cows in Montana, Circular No.106. Bozeman, Montana, Mont. Agri. Exp. Sta. June, 1922.

--------, Raising Dairy Cattle, Circular No. 104. Bozeman, Montana, Mont. Agri. Exp. Sta. March, 1922.

United States Department of Agriculture, Dairy Products Standards by States, Bureau of Animal Industry Circular No. 218 rev. 1913.

--------, Infectious Abortion of Cattle, Bureau of Animal Industry, Circular No. 216, 1913.

--------, Laws Relating to Contagious Animal Diseases, Bureau of Animal Industry Bulletin No. 43. 1901.

--------, Laws Relating to Tubersulosis, Bureau of Animal Industry Bulletin No. 28. 1901.

Welch, H., Contagious Abortion in Cattle, Circular No. 61. Bozeman, Montana, Mont. Agri. Exp. Sta. February, 1917.

Wisconsin Crop Reporting Service, Wisconsin Dairying in Mid-Century, Bulletin No. 331,Wisconsin Department of Agriculture, Madison, Wisconsin, 1955.

II. ARTICLES

Baker, O. E., "Agricultural Regions of North America; the Hay and Dairying Belt," Economic Geography, Vol. IV, January, 1928.

"Growth of Dairy Farms," New Statement, Vol. XXIX, July 16, 1927.

Hartshorne, R., "New Map of the Dairy Areas of the United States," Economic Geography, Vol. XI, October, 1935.

Teale, G. M., "development of the Bitter Root Valley," Overland Monthly, Vol. LIII, January, 1909.

Wilson, M. L., "Evolution of Montana Agriculture in its Early Period," Mississippi Valley Historical Review, Supplement, May, 1919.

III. BOOKS

Benedict, M. R., Farm Policies of the United States, 1790-1950, New York, The Twentieth Century Fund. 1953.

Bidwell, P. W., and Falconer, J. I., History of Agriculture in the Northern United States, 1620-1860. Washington, Carnegie Institute of Washington, May, 1925.

Buck, S. J., The Granger Movement, Cambridge, Harvard University Press. 1913.

Burlingame, M. G., The Montana Frontier, Helena, Montana, The State Publishing Company, 1942.

Calmette, Albert, Tubercle Bacillus Infection and Tuberculosis in Man and Animals, trans. Willard Soper & George Smith. Baltimore, Williams & Wilkins Co.,1923.

Dowell, A. A., and Jesness, O. B., The American Farmer and the Export Market, Minneapolis, The University of Minnesota Press, 1934.

Encyclopedia Britannica, Vol. XXII. Chicago, Encyclopedia Britannica Inc. 1947.

Enfield, R. R., The Agricultural Crises, 1920-1923, London, Longmans, Green and Co., 1924.

Howard, J. K., Montana High, Wide and Handsome, New Haven, Yale University Press, 1943.

McFarland, Carl, Milk Marketing under Federal Control, Milk Industry Foundation, 1946.

Pirtle, T. R., History of the Dairy Industry, Chicago, Illinois, Majonnier Bros. Company, 1926.

Shannon, Fred A., The Farmer's Last Frontier. New York, Farrar & Rhinehart, 1945.

Wolff, H. W., The Future of Our Agriculture, London, P. S. King & Son, Ltd., 1918.

IV. MANUSCRIPTS

Cappious, S. L., "A History of the Bitter Root Valley to 1914." unpublished M. A. thesis, University of Washington, 1929.

Hakola, J. W., "Development of a Policy Toward Irrigation in Montana to 1908." unpublished M. A. thesis, University of Montana, 1951.

Savage, W. T., "Analysis of Agricultural Income and Price Movements With Particular Reference to Montana." unpublished M. A. thesis, University of Montana, 1951.

V. NEWSPAPERS

Billings Gazette, Billings, Montana. 1906.

Bozeman Daily Chronicle, Bozeman, Montana. 1927-1929, 1931.

Great Falls Daily Leader, Great Falls, Montana. 1904.

Great Falls Daily Tribune, Great Falls, Montana. 1909, 1919-1939.

Montana Farmer, Great Falls, Montana. 1919-1939.

Northwest Tribune, Stevensville, Montana. 1925, 1930, 1931, 1933, 1937.

Rocky Mountain Husbandman, Great Falls, Montana. 1919-1921.